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All communications to be addressed:

"The Editor, Journal of Agriculture, Victoria Square, Adelaide."

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G. F. JENKINS,

Minister of Agriculture.

POINTS FOR PRODUCERS.

Agricultural Bureau Conference.

The Annual Conference of Branches of the Agricultural Bureau situated in the Pinnaroo district is to be held at Lamerloo on Tuesday, August 28th. Sessions will be held during the morning, afternoon, and evening, at which addresses will be given by Expert Officers of the Department, papers by Branch members, and time devoted to "Free Parliament."

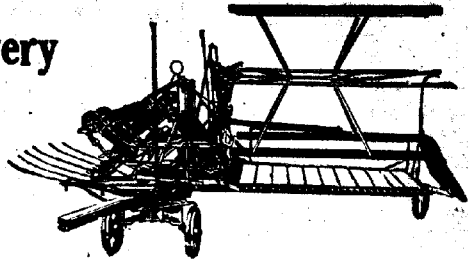
Tobacco Seed.

The Department of Agriculture has procured its supply of tobacco seed for the coming season, and has arranged to secure an additional quantity for the purpose of distribution amongst intending growers. The kinds available are the cigarette and light plug types.

Planting Citrus Trees.

The extraordinary wet and cold weather that has prevailed since the break up of the season has resulted in the soil in many instances being saturated, and wherever the under-drainage is not particularly free, the soils have become water logged. Whilst these conditions prevail it is not desirable to transplant citrus trees into their permanent positions in the orchard. The best results are secured from evergreen trees when they commence to grow almost immediately they are moved from the nursery to the orchard, otherwise the transpiration from the foliage will deplete the moisture in the plant tissues, because the broken root system will not be able to absorb a corresponding amount from the soil. It is, therefore, desirable to defer planting citrus and other evergreen trees until the soil temperature has begun to rise freely, so that root action will be stimulated directly after transplanting. If this is done, the tree begins to push out new growth and recover itself from the injuries received at the time of transplanting. Assuming; on the other hand, that the trees had been lifted, and the roots had not been severely injured, and it were possible for the trees to make a fresh start at once any new shoots that might develop would run a considerable risk of being damaged by frost and low temperatures during the cold nights that occur in July and August. This is one of the reasons why spring planting of evergreens is advocated by the Horticultural Branch of the Department of Agriculture in preference to autumn planting. A fairly good guide to follow as to the best time to begin transplanting in the spring is the first evidence of green shoots in the axils of the leaves. This indicates that temperatures are sufficiently high for the development of the plant, and the growth that is then beginning may as well take place with the tree in its permanent position in the orchard. If the young trees have already produced several inches of tender succulent growth, this, on removal from the nursery, should be cut away in the majority of instances, because it will only die from the effects of root damage in transplanting. The

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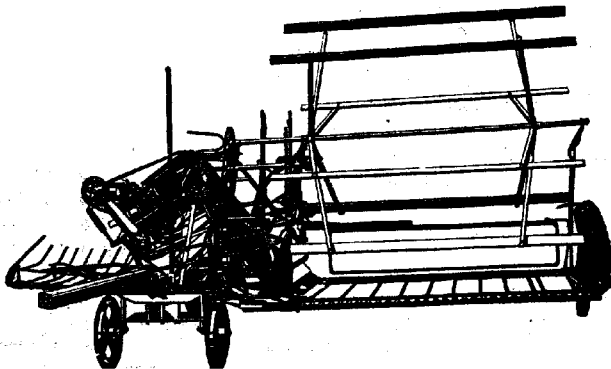
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majority of people appear to be afraid to cut citrus trees sufficiently when they are transplanting them, but when it is considered that the leaves will drain the tree if left in great numbers, the necessity for restricting their action by the removal of most of the lighter twigs carrying the bulk of the leaves is apparent.

Experiments with Raw Rock Phosphates.

Experiments to test the agricultural value of raw rock phosphates were commenced at the Government Experimental Farm, Kybybolite, in 1919. The rock phosphates used are low grade, and contain respectively (a) calcium phosphate, and (b) aluminium phosphate, equivalent to about 18 per cent. of phosphoric acid.

To test the rock phosphates on crops to be harvested, a rotation consisting of wheat—(for hay)—peas, in which both the wheat and pea crops are dressed with the same fertilisers, was laid down. The results secured from these plots during the past four seasons are as follows:—

Wheaten Hay Yields, 1919-1922.

Plot.	Manuring per Acre.	1919.			1920.			1921.			1922.			Means, 1919-22.
		T.	C.	L.	T.	C.	L.	T.	C.	L.	T.	C.	L.	
1	No manure	0	10	84	0	9	0	0	18	84	0	7	21	0 11 47
2	5wts. lime, 1ewt. super-phosphate	1	6	105	0	17	35	0	18	28	2	4	0	1 6 70
3	1ewt. superphosphate	1	7	28	0	13	0	0	17	84	1	12	70	1 2 73
4	1ewt. aluminium phosphate rock	1	6	91	0	12	91	0	14	91	1	6	80	1 0 32
5	1ewt. calcium phosphate rock	1	3	7	0	11	0	0	12	21	1	1	60	0 16 106

Pea Yields, 1919-1922.

Plot.	Manuring per Acre.	1919.		1920.		1921.		1922.		Means, 1919-22.
		R.	L.	B.	L.	B.	L.	B.	L.	
1	No manure	0	30			2	54	5	54	2 19
2	5wts. lime, 1ewt. super-phosphate	1	17	Total failure.		5	26	15	29	5 33
3	1ewt. superphosphate	1	4			7	4	10	45	4 43
4	1ewt. aluminium phosphate rock	1	30			7	10	7	51	4 8
5	1ewt. calcium phosphate rock	0	39			5	45	5	45	3 2

It is noticeable that Plot 2, which is treated with lime and superphosphate, is increasing its advantages over the others in producing wheaten hay, and it has also this year gained considerably in the yield of peas. This plot of hay stood out well above the others all through the season, as also did the plot of peas, the stubble of which produced a growth of wireweed during January and February very much greater than that on other plot stubbles. The results so far secured tend to show that the local aluminium rock is slightly superior to the local calcium rock for this soil.

Hatching Chickens.

On many farms in this State incubators are unknown, and all chickens are hatched by natural methods. Broody hens are not always available until late in the year. Late hatching has long been recognised as a great mistake. Late hatching pullets are not old enough to lay during autumn and winter when the price of eggs is high. They do not lay until the price of eggs is relatively low. This fact, of course, accounts largely for scarcity of eggs in autumn and winter. Late hatched chickens do not develop well, and have less stamina than those hatched earlier in the year. All heavy breeds should be hatched during July and August, and all light breeds, such as Leghorns, should be hatched not later than the end of September. In the hills and South-East a fortnight later may be allowed. Improved laying strains of fowls are responsible for the lessened number of broody hens early in the season. When selecting eggs for hatching, discard any less than 26z. in weight or that have rough shells or that are misshapen. It is highly important to increase the size of eggs laid by our hens; this can be accomplished by careful selection.

Sale of Fertilisers.

Recently a retailer of fertilisers was proceeded against in the Adelaide Police Court, under the provisions of the Fertilisers Act, for selling a bag of potato manure without giving the purchaser an invoice setting out the contents of the bag and the percentages of the fertilising constituents in the parcel. A conviction without a fine was recorded. This should not be construed as a precedent, but serve to warn retailers of fertilisers of their responsibilities under the Act, which is to be strictly enforced in the future.

Black Spot of the Grape Vines.

Following on the continuous wet weather that is now being experienced in this State, it is more than likely that those vineyards which were affected with black spot during the past season will experience another outbreak with the opening of the new season's growth. Whilst it is not suggested that owners of vineyards in which black spot was not present last year should go to the expense of treating their vines, the Horticultural Branch of the Department of Agriculture suggests that the owners of vineyards which were affected last season would be well advised to take recognised preventive measures against a further outbreak. These consist of swabbing or spraying the vines or at least all of last summer's growth with a solution of sulphate of iron and sulphuric acid. The solution is made up by pouring $\frac{1}{4}$ gallon of sulphuric acid over 50lbs. of sulphate of iron, then dissolving the iron crystals in 10 gallons of boiling water. The effectiveness of the treatment depends entirely upon the thoroughness with which it is carried out. The object is thoroughly to penetrate the wounds made by the disease during the previous summer and destroy the spores of the

disease therein. Another remedy is a ten per cent. solution of sulphuric acid, used as a spray. The use of this, however, demands a sprayer made or lined with lead or some acid resisting substance.

Pruning Deciduous Trees.

Amongst growers of deciduous fruit trees both for commercial purposes and on a small scale there is a tendency to continue methods of pruning which are now recognised as being more or less obsolete. It is not that the principles underlying the practices of pruning have undergone any change. These principles were worked out in the olden countries of the world on the basis of their long experience and observation. The trouble seems to have crept in in the interpretation of these principles and their application to plant habits and growth under local conditions. Whilst it is recognised as desirable during the first two or three seasons after the fruit tree has been planted to prune it severely, first, with the object of balancing the top with the root system, which of necessity has been broken in transplanting, and, secondly, with a view to securing a well-balanced frame work, it does not necessarily follow that each successive annual pruning should be on the lines of stumping back the leaders and cutting out large quantities of lateral wood. To admit an abundance of light into the centre of the tree is of the utmost importance, even in a sunny climate such as that possessed by this State. But after the framework has been established, and the tree has continued to make strong growth, nothing is to be gained, but much to be lost, by severe pruning during the winter season. Should the tree give indications of growing to an undesirable height, cutting back the leaders will not prove a check. This is more likely to result if the leaders are left untopped or the top growth is turned on to lower and suitably placed shoots which are not topped.

With such fruits as the apple, pear, and plum the shortening of the laterals which spread themselves around the outer framework of the tree invariably postpones the productive period, as these fruits bear chiefly on spurs which emerge from these laterals during the second year of their growth. It is the opinion of the Horticultural Branch of the Department of Agriculture that growers lose more fruit as a result of over-pruning than they do as a result of under-pruning orchards in this State.

Veitch's Well Experimental Farm.

The Government Experimental Farm, Veitch, is situated in what is popularly known as the Loxton district. It is about 3,800 acres in area, and is typical of thousands of acres of the surrounding country. The report of the 1922-23 harvest of this farm has just been issued by the Department of Agriculture. This shows that the season was an average one, the total rainfall for the year being 10.28in. and the "useful" rainfall 8.69in. Cropping in the fields was confined to the cereals. An area of 42.94 acres was cut for hay, the average being 1 ton 7cwt. 106lbs. per acre, as compared with the average for the past

13 years, viz., 1 ton 0cwt. 74lbs.; 84.89 acres of oats were harvested for grain, the average being 10bush. 13lbs. per acre. This is much below the average for the farm for the past seven years, viz., 17bush. 25lbs. Barley for grain was grown on 54.69 acres of fallow, and 17.55 acres of "new" land. An average return of 13bush. 6lbs. was reaped, the mean for the farm for the past eight years being 16bush. 7lbs. For wheat 427.84 acres were sown, the average return being 9bush. 52lbs., as compared with the mean for the past 14 years of 10bush. 53lbs. The varieties which showed to advantage were President, Walker's Wonder, Sultan, Canaan, Queen Fan, and Triumph.

The permanent experimental work being conducted on this farm includes—(a) manurial tests with wheat, the rotation adopted being (1) pasture, (2) bare fallow, (3) wheat; (b) cultivation tests with wheat; (c) manurial tests with six-rowed barley; (d) cultivation tests with six-rowed barley; (e) rate of seeding tests with wheat; (f) rate of seeding tests with barley.

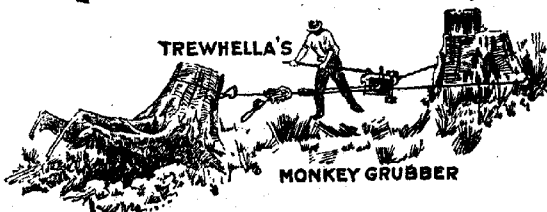
The permanent manurial plots on this farm were laid down in 1920, hence it will be some years yet before the returns can be used as a reliable basis of comparison. However, since 1915 tests with varying dressings of superphosphates on wheat crops have been conducted on fallow land, and the mean returns secured during the eight-year period have been as follows:—No manure, 14bush. 4lbs.; $\frac{1}{2}$ cwt. of super, 15bush. 50lbs.; 1cwt. of super, 16bush. 49lbs.; 2cwts. of super, 17bush. 7lbs.; 3cwts. of super, 17bush. 39lbs.

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INQUIRY DEPARTMENT.

Any questions relating to methods of agriculture, horticulture, viticulture, dairying, &c., diseases of stock and poultry, insect and fungoid pests, the export of produce, and similar subjects, will be referred to the Government experts, and replies will be published in these pages for the benefit of producers generally. The name and address of the inquirer must accompany each question. Inquiries received from the question-boxes established by Branches of the Agricultural Bureau will be similarly dealt with. All correspondence should be addressed to "The Editor, *The Journal of Agriculture*, Adelaide."

[Replies supplied by C. A. LOXTON, B.V.Sc., Government Veterinary Surgeon.]

"W. T. T.," Wudinna, reports death of fat wethers from rupture of the bladder.

Reply—The cause of the obstruction is a calculus or stone in the urethra or tube from the bladder, by which the urine is evacuated. The trouble is most frequently seen in highly fed sheep, and is confined to rams and wethers, in which the calibre of the tube is small. The obstruction often occurs in the free portion of the penis, just behind the wormlike process, and in these cases relief can be given by amputating this portion of the organ. Where the obstruction is further up the tube nothing can be done in the way of surgical treatment.

Hon. Secretary, Agricultural Bureau, Mount Gambier, asks, Are small blood worms in horse troughs injurious to horses?

Reply—These small red worms are probably the larvae of one of the midges, which are common in stagnant water. They are of no economic importance, and are not injurious to horses. I note that this inquiry was previously replied to on May 14th. Confusion occurs from the fact that a common name such as "blood worm" is used to describe several different forms. The immature "blood worm" of horses in the form it is swallowed by the host is almost microscopic in size. These will occur in the drinking water if it is subject to contamination from the manure of horses harboring the parasite.

[Replies by F. MURRAY JONES, B.V.Sc., M.R.C.V.S., Assistant Government Veterinary Surgeon.]

"E. T.," Mount Bryan, has heifer with large swelling around the navel.

Reply—This condition will not prevent you using the milk. Give the animal as a drench the following:—Epsom salts, 8ozs.; whole ginger, 1oz.; treacle, 4ozs.; tepid water, 1 pint. Shake until the salts are dissolved, and then administer. Apply with friction a mixture consisting of equal parts of salad oil and vinegar to the swelling.

"W. H. T.," Black Springs, has foal, although well fed, is losing condition.

Reply—I would suggest you feeding the foal on ground oats, maize meal, and chaff, to which has been added a little oil cake. Feed only the best hay, and do not give any that is inclined to be mouldy or dirty. Provide green feed if possible.

Hon. Secretary, Agricultural Bureau, Yadhav, asks—(1) What percentage of pure blood could a calf claim bred from a pure-bred bull and a mongrel cow, first, second, third, and fourth cross? (2) What percentage of pure blood would be imparted by a half pure-bred bull and a mongrel cow, first, second, third, and fourth cross? (3) Cure for horse with swollen legs.

Reply—Question No. 1: Proportion of pure blood resulting from pure-bred bull and mongrel cow:—First cross, half bred; second cross, three-quarter bred; third cross, seven-eighth bred; fourth cross, fifteen-sixteenth bred; fifth cross, thirty-one-thirty-second bred. Question No. 2: Proportion of pure blood resulting from half-bred bull and mongrel cow:—First cross, one-quarter bred; second cross, three-eighth bred; third cross, seven-sixteenth bred; fourth cross, fifteen-thirty-second

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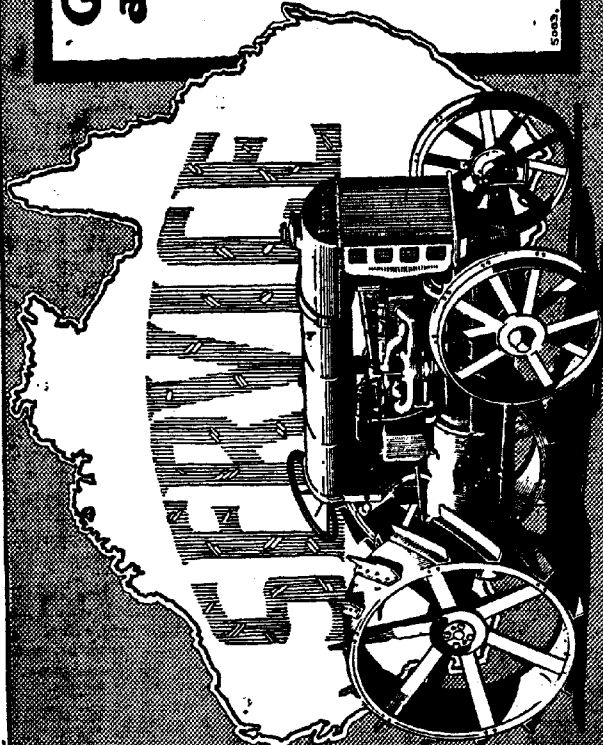
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bred; fifth cross, thirty-one-sixty-fourth bred. Question No. 3.—I should advise the administration of half a teaspoonful of powdered nux vomica given with treacle and smeared on the teeth and tongue once daily. In addition, make up the following powders:—Sulphate of iron, 6ozs.; powdered gentian, 10ozs., mixed together, and place one tablespoonful in the feed once daily.

Hon. Secretary, Agricultural Bureau, Moorook, reports mare with very tender mouth, and unable to eat long hay.

Reply—I would advise you to give her half a pint of raw linseed oil. Bathe the mouth with a solution of alum water in the strength of one teaspoonful to a pint of water. Feed her with soft and sloppy diet with a liberal amount of bran. Other feed to be damp.

“E. W. P.,” Brinkley, has six-year-old gelding suffering from swelling of the hind legs.

Reply—I gather that the animal suffers from a recurrence of a condition known as “big leg,” or lymphangitis. This condition usually follows on after a rest or when the animal has been liberally fed with grain. Again, some animals seem particularly prone to this ailment. Treatment consists in giving a purgative, such as an aloetic ball, together with constant cold applications to the affected limb. Sometimes this condition ends in more or less chronic thickening of the limbs.

Hon. Secretary, Agricultural Bureau, Clarendon, asks if there is any law in existence whereby an owner known to have a horse suffering from cancer can be compelled to destroy the animal.

Reply—The Stock Diseases Act of 1888 provides the Chief Inspector of Stock with full power to take whatever steps he considers necessary in the suppression of animal diseases, and cancer is one of the scheduled diseases. However, in actual practice as regards horses, the case would have to be beyond veterinary surgical treatment, before the owner would be advised to destroy.

“L. R.,” Pata, has forwarded for identification balls of matted fibre taken from the bibb of a sheep.

Reply—These balls or concretions are fairly common. They consist of, usually, cotton fibres or layers of vegetable matters. The mass becomes rounded as the result of the movement on the stomach walls. The black cover is the result of the digestive juices acting on the outer layer.

Hon. Secretary, Blackheath Agricultural Bureau, reports (1) that when dressing a sheep the liver was found to be attached to one side of the ribs; (2) horse, when working, discharges dirty fluid from nostrils.

Reply—(1) A liver adhering to ribs is generally due to an inflammatory condition of the liver, originating either from dietetic or bacterial causes. This condition does not affect the sheep carcass for human consumption. (2) *Re* horse, nasal discharge.—This is the result of condition known as nasal catarrh. It is generally very persistent and unpleasant. I should advise you to try the effects of steaming the head with turpentine or eucalyptus, 2ozs., which should be placed in the bottom of a nosebag, together with a handful of straw, add one pint of boiling water to this. Adjust the nosebag to suit the animal and steam for 15 minutes daily. Care is required not to impede the animal's breathing the first time the nosebag is used.

“P. J. J.,” Laneruo, reports aged mare which, after being ridden for some distance, lays down and appeared to be griped. Stiff in front legs, urine tinged with blood, and has lumps between front legs.

Reply—I am inclined to think that your mare suffered from a condition known as *azoturia*, a condition due to certain changes in the blood. This ailment generally occurs only during work after the animal has been spelled. I should advise giving a purgative, such as raw linseed oil, three-quarters pint, or four-dram aloetic ball. Apply liniment of belladonna to the swelling, and give daily in a drinking bucket Epsom salts, 1 oz., saltpetre, 4oz.

DEPARTMENTAL DOINGS.

AGRICULTURE.

During the past month the Director of Agriculture (Professor Arthur J. Perkins) addressed meetings of the Agricultural Bureau at Crystal Brook and Tarlee. On July 31st the Director, in company with the members of the British Overseas Land Settlement Delegation, visited the Yorke Peninsula and Middle North agricultural areas.

The Superintendent Experimental Works (Mr. W. J. Spafford), in company with the Field Officer (Mr. S. B. Opie) and the Assistant Tobacco Expert of the Victoria Department of Agriculture (Mr. G. Marks) visited the property of Mr. P. C. Head at Woodside in connection with the proposed experiments in tobacco culture.

The Field Officer (Mr. S. B. Opie) delivered addresses to the Windsor and Pompoota Branches of the Agricultural Bureau.

HORTICULTURE.

The Horticultural Instructor (Mr. Geo. Quinn) attended a Vine Pruning Competition at Lyndoch organised by the local Branch of the Agricultural Bureau, and assisted the officials in judging the work of the competitors. Mr. Quinn also attended the Vine Pruning Match held under the auspices of the Royal Agricultural and Horticultural Society at Reynella. A pruning demonstration and address were also given by this officer to the members of the Farrell's Flat Agricultural Bureau. Five lectures and two Saturday afternoon demonstrations were given to the students of the Fruit Culture Class at the School of Mines.

POULTRY.

Mr. D. F. Laurie (Government Poultry Expert) delivered an address to the students of the Winter School for Farmers at Roseworthy Agricultural College. Mr. Laurie inspected a number of large poultry plants in the metropolitan and suburban areas, and delivered four lectures to a class of 103 students at the School of Mines.

DAIRYING.

The Government Dairy Expert (Mr. P. H. Suter) addressed the Winter School for Farmers at Roseworthy Agricultural College and the members of the Clarendon Branch of the Agricultural Bureau. Mr. Suter also attended the Conference of Upper Northern Branches of the Agricultural Bureau. The Assistant Dairy Expert (Mr. H. J. Apps) delivered addresses to the following:—Pompoota and Nunkeri and Yurgo Branches of the Agricultural Bureau, and the Winter School for Farmers at the Roseworthy Agricultural College. Dairy factories and dairymen in the Murray Bridge district were also visited by this officer.

GENERAL.

Captain S. A. White, C.M.B.O.U. (Vice-Chairman of the Advisory Board of Agriculture) delivered addresses to the Clare and Halidon Branches of the Agricultural Bureau. The Secretary of the Advisory Board of Agriculture (Mr. H. J. Finnis) attended the Annual Conference of Upper Northern Branches of the Agricultural Bureau at Morchard. Mr. F. C. Richards addressed the annual meeting of the Strathalbyn Bureau and opened a new Branch at Cobdogla.

DAIRYING AND PIG RAISING IN THE HILLS.

Owning a 100-acre farm, equipped with a 60-ton capacity silo, a farmer in the Woodside district, who desires to engage mainly in dairying and pig raising, recently sought the advice of the Department of Agriculture as to the best way to crop the holding. The recommendations of the Superintendent of Experimental Work (Mr. W. J. Spafford) were as follows:—

To be managed as a dairy farm in conjunction with pigs, very possibly best results will be obtained if practically all crops grown are utilised by feeding them to cows, and sufficient grain or grain products purchased to feed to pigs in admixture with skim-milk, butter-milk, or whey, according to which by-product is available. To do this to advantage the following order of cropping could be followed:—

20 acres Subterranean clover (first year).

20 acres Subterranean clover (second year).

20 acres cereals for hay.

20 acres summer crops for ensilage and green feed.

20 acres for house, buildings, yards, potatoes, peas, &c.

These crops could consist of:—

20 Acres Cereals for Hay.—6 acres Algerian oats (sown in April); 6 acres, mixture Algerian oats and Leak's Rustproof wheat (sown after the oats); 8 acres, Leak's Rustproof wheat, or an earlier variety, if for any reason the seeding was delayed.

20 Acres Summer Crops for Ensilage and Green Feed (grown on the land which carried cereals the previous year).—7 acres sunflowers for ensilage and green feed; 7 acres maize for ensilage and green feed; 6 acres Sudan grass for green feed.

20 Acres Subterranean Clover (first year).—To be sown in April at latest, on the land which carried the summer crops in the previous year.

20 Acres Subterranean Clover (second year).—Being the second year that the clover is left for pasture, after seeding the land which carried summer crops.

If you should wish to grow some grain for livestock feeding, the order of cropping could remain the same, but barley could be grown in part of the cereal-crop fields; maize and grain sorghums could be grown for grain amongst the summer crops; and peas and other grain producers could be grown on the 20 acres set aside for potatoes and other small-area crops.

In your district liberal applications of phosphatic fertilisers are quite essential, and at least 1cwt. superphosphate should be used to the acre with every crop grown, and better results will be secured if this amount is considerably increased. For any potatoes you grow, dressings of 6cwts. to 10cwts. superphosphate per acre are not too heavy.

WALLAROO M^T LYELL

THE BIG CHEQUE PRODUCER

FERTILISERS

SECOND REPORT ON THE TURRETFIELD DEMONSTRATION FARM.

1922-33 SEASON.

[By ARTHUR J. PERKINS, Director of Agriculture.]

It will be recalled that since the 1st of July, 1921, Turretfield has been run as a Demonstration Farm, on which it is proposed to carry out, on a commercial scale, the farming practices recommended for the district. It follows that all more or less experimental work has had to give way to the requirements of a balance-sheet, corresponding to normal farming operations.

SCHEME OF FARM OPERATIONS.

The farm consists approximately of 1,262 acres of arable land and 327 acres of rough grazing land; in addition, about 15 acres are occupied by buildings, plantations, &c.

The general plan of operations has been described in detail in the first report; it may be summarised briefly as follows:—

The major portion of the arable area is run on a three-course rotation and the balance on a four-course rotation, resulting roughly in the following distribution of the land:—

	Acres.
1. Bare fallow	450
2. Hay or Wheat	450
3. Second crop (barley or oats)	200
4. Grazing crops, &c.	162.
Arable area	1,262

Naturally, the actual distribution of the land in each season is dictated by circumstances, and cannot always conform absolutely to the ideal indicated above. In the 1922-23 season the distribution was as follows:—

	Acres.
1. Bare fallow	424
2. Wheat and Hay	429
3. Second crop (barley)	131
4. Grazing crops, &c.	278
Arable area	1,262

A fat lamb flock and a herd of Middle York pigs form the main type of livestock associated with these crops. The livestock have access to both the arable and the non-arable areas, and accounts concerned are debited proportionally.

THE 1921-22 SEASON.

The 1921-22 season, which has already been reported upon in detail, closed with a net profit of £398 11s. 6d. (exclusive of estimated land tax and district council rates) for a period of nine months (July 1st, 1921, to March 31st, 1922). For the same period the sum of £800 5s. was paid into general revenue as representing charges owing for rent, interest on floating capital and portion of manager's salary, less difference between interest on current and overdraft accounts. The difference between assets and liabilities (including manager's salary and estimated land tax and district council rates, but exclusive of rent and interest), namely, £1,019 12s. 7d., was equivalent to 7.73 per cent. per annum for a period of nine months on the capital (fixed and floating) engaged by the Government on the farm, namely, £17,590 18s. 2d.

From another point of view, if the manager be looked upon as owner, after keeping himself and family in food and service, and

allowing 5 per cent. on fixed and floating capital, his net earnings over a period of nine months would have been equivalent to £500 19s. 5d.

It should be stated here that these satisfactory results are much to the credit of the very efficient management of Mr. F. E. Waddy.

1922-23 SEASON.

The cropping returns of the season now under consideration—1922-23—were, on the whole, somewhat disappointing, notwithstanding the fact that rainfall conditions—usually the decisive factor in such matters—were more or less normal. These are shown below in comparison with previous means:—

TABLE I.—*Showing 1922 Rainfall in Comparison with Previously Recorded Means (14 Years).*

	1922.		Means (14 Years).	
	In.	In.	In.	In.
January	1.42		0.53	
February	0.04		0.80	
March	0.06	1.52	1.03	2.36
April	0.77		0.82	
May	3.92		2.39	
Seeding rains		4.69		3.21
June	1.70		2.23	
July	3.62		2.00	
Winter rains		5.32		4.23
August	1.72		2.11	
September	1.07		2.41	
October	1.54		1.65	
Spring rains		4.33		6.17
November	Nil		1.17	1.17
December	2.76		0.90	
Total "useful" rain . . .		15.86		17.14
Total rainfall	18.62		18.04	

It will be noted that "useful" rain, *i.e.*, rain falling during the growing season was slightly below normal, the main deficiency affecting spring and early summer months.

For the most part the crops made an excellent start; later on, however, towards July and August they weakened and did not recover by harvest time. Usually the bulk of Turretfield crops would be cut for hay under a balance-sheet scheme; in the present season 50 per cent.

of the crops made poor growth and were reserved for grain, whilst the balance, which was better grown, was cut for hay. This hay proved to be of exceptionally fine quality. Results will be dealt with in detail under each separate account.

THE 1922-23 BALANCE-SHEET.

Exclusive of interest on fixed and floating capital (£879 10s. 11d.), but inclusive of manager's salary and estimated rates and taxes, the difference between assets and liabilities on the 31st March, 1923, was £1,351 8s. 6d., which represents the gross earnings for the season, or 7.68 per cent. on capital engaged by the Government on the farm, against 7.73 per cent. for the nine months of the preceding season.

From another point of view, if we assume the manager to own the farm, after allowing 5 per cent on his fixed and floating capital and keeping himself and family for 12 months and meeting estimated value of rates and taxes, his net earnings would have been £657 15s.

And finally, after payment of the manager and £879 10s. 11d. towards rent and interest, the net profits earned by the farm between the 1st of April, 1922, and the 31st March, 1923, were represented by £522 14s. 7d. In this sum neither land tax nor district council rates have been allowed for; these are estimated to be represented respectively by £22 10s. 2d. and £28 6s. 10d., or £50 17s. in sum total. Hence, £471 17s. 7d. would represent net earnings to a farmer after allowing £300 per annum for himself and 5 per cent. on all capital engaged.

It should be added here that as a result of an oversight in closing last year's accounts the above figures are all too high, whilst corresponding figures for last year were too low. On March 31st, 1922, interest against capital account had not been paid into the Treasury, and by an oversight it was not shown under sundry creditors; it did not, therefore, appear on the balance-sheet. In discussing the season's results, this unpaid rent was distributed *pro rata* among the various accounts; unfortunately, 1921-22 bare fallows were overlooked at the time and did not bear their share, namely, nine months on 418 acres, or £175 18s. 2d. out of £533 17s. 9d. (nine months' rent). It follows, therefore, that the 1922-23 season took over these fallows at £175 18s. 2d. below their value and that the 1921-22 net profit suffered to that extent, whilst the 1922-23 net profit benefited by a similar amount.

The combined profits for the first 21 months (1921-23), namely, £921 6s. 1d., correctly represent the position. In future, fallows will

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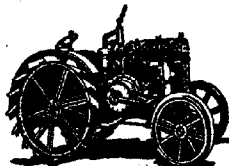
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always be taken over by the new season adequately loaded with their share of rent.

APPORTIONMENT OF RENT.

The total value of rent—5 per cent. on value of land and improvements—is represented by £711 17s. This sum has to be distributed *pro rata* among the various accounts. The following distribution has been adopted for the 1922-23 season:—

	£	s.	d.
Sheep account	247	3	4
Bare fallow account	191	10	4
Hay account	95	2	4
Wheat account	86	9	8
Barley account	58	17	2
Cattle account	21	8	7
Pigs account	10	5	1
Poultry account	1	0	6
	<hr/>		
	£711	17	0

In this apportionment of rent, wheat, hay, barley, and bare fallow have each been debited with nine months' rent, which may be taken roughly to represent the mean period the land is under crop. Of these, crops sown on fallow land will automatically take up additional rent debited against fallow in the preceding season.

In the present season rent debited against horses, £53 12s. 6d., has been distributed *pro rata* amongst the accounts interested in the following ratio:—

	£	s.	d.
Bare fallow	28	9	9
Hay	8	4	5
Wheat	8	8	7
Barley	8	9	9
	<hr/>		
	£53	12	6

It is proposed in future to debit horses directly with rent and to recover the same through the enhanced value of the horse-day.

APPORTIONMENT OF TAXES.

I have already indicated that land tax and district rates have been estimated respectively at £22 10s. 2d. and £28 6s. 10d. These figures have not been included in the balance-sheet, as they do not represent actual payments made by the farm. I propose, however, taking them

into consideration when discussing individual accounts. Hence, they have been distributed as follows amongst the various accounts:—

	£	s.	d.
Sheep account	17	5	5
Bare fallow account	11	6	6
Hay account	8	0	11
Wheat account	7	4	7
Barley account	4	13	4
Cattle account	1	10	7
Pigs account	0	14	3
Poultry account	0	1	5
Total	£50	17	0

HAY ACCOUNT.

About 489 tons 6cwts. of hay were cut from 225.93 acres, representing a mean yield of 2 tons 3cwts. 35lbs. per acre.

On the 31st March this account showed a net profit of £576 11s. 4d., or £2 11s. an acre. If we take into consideration proportional rates and taxes—£8 0s. 11d.—this reduces the net profit to £568 10s. 5d., or £2 10s. 4d. per acre.

It has already been pointed out that in these accounts the 1921-22 fallows are not carrying their due share of rent, and as the hay crops were all sown on fallow land, it follows that the net profit indicated above is too high by an amount equivalent to nine months' rent of arable land. This sum is represented by 8s. 3d. per acre, and reduces the net profit to £2 2s. 1d. an acre.

It should be observed here that the necessity of commenting on each season's operations as soon as possible after harvesting operations have been completed, forces us to close each account whether the produce is actually sold or is still on hand. Hence, so soon as harvesting operations have been completed—in the case of hay, as soon as it is safely stacked—produce not sold in the field is transferred at a valuation to a suspense trading account, which we have called "stores account", and from which at a later date it is either sold or distributed for farm purposes. The basis of the valuation in this connection is the ruling local price at the time; and it follows that according as local prices rise or fall at a later date, so "stores account" will make a profit or a loss on harvest-time valuation. In the present instance the hay was taken over at £3 a ton; and if, as at one time seemed likely, dry conditions had extended into the winter, "stores account" would probably have made a profit on the transaction. As matters eventuated, however, we shall probably have to register a loss on next year's accounts.

I append below a detailed analysis of expenditure incurred under this account, inclusive of incidentals which must be debited against it.

1922-23 Hay Account—Expenditure.

1922-23 Fallow—	Per Acre.						Per Ton.						
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Tillage operations	105	0	9	—	—	—	0	9	3-6	—	4	3-5	
Rent	92	15	2	—	—	—	0	8	2-5	—	3	9-5	
	£197 15 11						£0 17 6						£0 8 1
Seeding operations—													
Tillage, ploughing	£4	2	7										
Cultivating	28	4	6										
Harrowing	9	18	10										
Hand-hoeing	0	16	1										
	£38 2 0			—	£0 3 4-4			—	1 6-7			—	
Drilling super, 161.13 acres	£27	7	1										
Marking out	1	4	9										
Broadcasting seed	4	11	2										
	£33 3 0			—	£0 4 1-4			—	1 10-8			—	
Drilling super and seed, 64.8 acres	£13	12	3	—	£0 4 2-4			—	1 11-3			—	
	£46 15 3			—	£0 4 1-7			—	1 11			—	
Super.	113	6	1	—	£0 10 0-8			—	4 7-6			—	
Seed	98	19	3	—	£0 8 9-1			—	4 0-5			—	
	£297 2 7						£1 6 3-5			£0 12 18			
Spring tillage—													
Harrowing	£2	16	4										
Rolling	2	13	7										
				£5 9 11			—	£0 0 5-8			—	0 0 2-7	
Harvesting operations—													
Binding	£58	5	7	—	£0 5 1-9			—	2 4-6			—	
Stooking	25	16	5	—	£0 2 2-4			—	1 0-2			—	
Carting and stacking	144	16	8	—	£0 12 9-8			—	5 11			—	
Binder twine	30	15	8	—	£0 2 8-7			—	1 3-1			—	
	£258 14 4			—	£1 2 10-8			—	£0 10 6-9			—	
Incidental—													
General	£119	18	1	—	0 10 7-4			—	4 11-5			—	
Insurance	11	16	3	—	0 1 0-6			—	0 5-9			—	
Rates and taxes	8	0	11	—	0 0 8-5			—	0 3-9			—	
	£139 15 3			—	£0 12 4-5			—	£0 5 3-3			—	
Rent	—	95	2	4	—	0 8 5			—	0 3 10-7			
Totals	£994 0 4						£4 8 0			£2 0 7			

An analysis of expenditure incurred in the growing of hay shows in the first place that it cost £994 0s. 4d. to cultivate, seed, and stack hay from 225.93 acres, yielding 2 tons 3cwt. 35lbs. to the acre. Comparison with last year's expenditure is possible only to a limited extent, since the crops sown were taken over at a valuation of 25s. an acre on July 1st, 1921. Roughly, the comparison would stand as follows:—

	Per Acre.		Per Ton.	
	1922-23.	1921-22.	1922-23.	1921-22.
	£	s. d.	£	s. d.
Tillage of fallows	0	9 3-6	{	0 4 3-5
Seeding operations	1	6 3-5	{	0 12 1-8
Spring tillage	0	0 5-8		0 0 2-7
Harvesting operations	1	2 10-8		0 10 6-9
Incidentals	0	12 4-5		0 5 8-3
Rent (18 months)	0	16 7-5		0 7 8-2
Totals	£4	8 0	£2	0 7
			£1	10 8

It will be noted that notwithstanding the fact that the hay yield was heavier in 1921-22, expenditure incurred both per acre and per ton was heavier in 1922-23. This may partly be explained by the fact that the crops were taken over at a valuation in July, 1921; probably these valuation figures were below actual costs of production. On the other hand, harvesting costs per ton were heavier in 1921-22, whilst incidentals were lower. Rate per ton was naturally lower in 1921-22 in view of the higher yield.

It should be added that apart from the value of the hay garnered in, the hay account has been credited with estimated value of feeding off the crop with sheep, namely, £54 7s. 7d., which reduces the net costs of growing the hay to that amount.

This account makes clear the fact that if a farmer assesses his personal efforts and oversight at £300 per annum, and pays standard wages to all those taking part in farm work, hay cannot be raised and stacked at less than 30s. to 40s. a ton, according to yields.

The analysis which follows will, perhaps, bring out more clearly the bearing of various items of expenditure and will serve as a basis of comparison for future years:—

	Labor.			Horses.			Implements.			Total.			Percentage.
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Tillage of fallows	32	16	7	57	6	0	14	18	2	105	0	9	10.0
Seeding operations	25	6	9	41	12	11	17	17	7	84	17	3	8.5
Spring tillage	2	2	3	2	17	9	0	9	11	5	9	11	0.6
Harvesting operations	119	6	7	70	19	3	37	12	2	227	18	8	22.9
Super.	—	—	—	—	—	—	—	—	—	113	6	1	11.4
Seed	—	—	—	—	—	—	—	—	—	98	19	3	10.0
Twine	—	—	—	—	—	—	—	—	—	30	15	8	3.1
General	—	—	—	—	—	—	—	—	—	119	18	1	12.0
Taxes	—	—	—	—	—	—	—	—	—	8	0	11	0.8
Insurance in field	—	—	—	—	—	—	—	—	—	11	16	3	1.2
Rent (18 months)	—	—	—	—	—	—	—	—	—	137	17	6	13.9
Totals	£179	12	2	£172	15	11	£70	18	6	£994	0	4	—
Percentage	18.1			17.4			7.1			—			100.0

	Labor.			Horses.			Implements.			Total.			Percentage.
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Tillage of fallows ..	0	2	10.8	0	5	1	0	1	3.8	0	9	3.6	
Seeding operations ..	0	2	3	0	3	8.2	0	1	7	0	7	6.2	
Spring tillage	0	0	2.2	0	0	3.1	0	0	0.5	0	0	5.8	
Harvesting operations ..	0	10	6.7	0	6	3.3	0	3	4	1	0	2	
Super	—	—	—	—	—	—	—	—	—	0	10	0.3	
Seed	—	—	—	—	—	—	—	—	—	0	8	9.1	
Twine	—	—	—	—	—	—	—	—	—	0	2	8.7	
General	—	—	—	—	—	—	—	—	—	0	10	7.4	
Taxes	—	—	—	—	—	—	—	—	—	0	0	8.5	
Insurance in field ..	—	—	—	—	—	—	—	—	—	0	1	0.6	
Rent (18 months) ..	—	—	—	—	—	—	—	—	—	0	16	7.6	
Totals	£0	15	11	£0	15	4	£0	6	4	£4	8	0	

	Per Ton.											
	Labor.			Horses.			Implements.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Tillage of fallows	0	1	4.1	0	2	4.1	0	0	7.3	0	4	3.5
Seeding operations	0	1	0.5	0	1	8.5	0	0	8.7	0	3	5.6
Spring tillage	0	0	1	0	0	1.4	0	0	0.2	0	0	2.6
Harvesting operations	0	4	10.5	0	2	10.8	0	1	6.4	0	9	3.8
Super.	—	—	—	—	—	—	—	—	—	0	4	7.6
Seed	—	—	—	—	—	—	—	—	—	0	4	0.5
Twine	—	—	—	—	—	—	—	—	—	0	1	3.1
General	—	—	—	—	—	—	—	—	—	0	4	10.5
Taxes	—	—	—	—	—	—	—	—	—	0	0	3.9
Insurance in field	—	—	—	—	—	—	—	—	—	0	0	5.9
Rent (18 months)	—	—	—	—	—	—	—	—	—	0	7	8.1
Totals	£0	7	4.1	£0	7	0.8	£0	2	10.6	£2	0	7

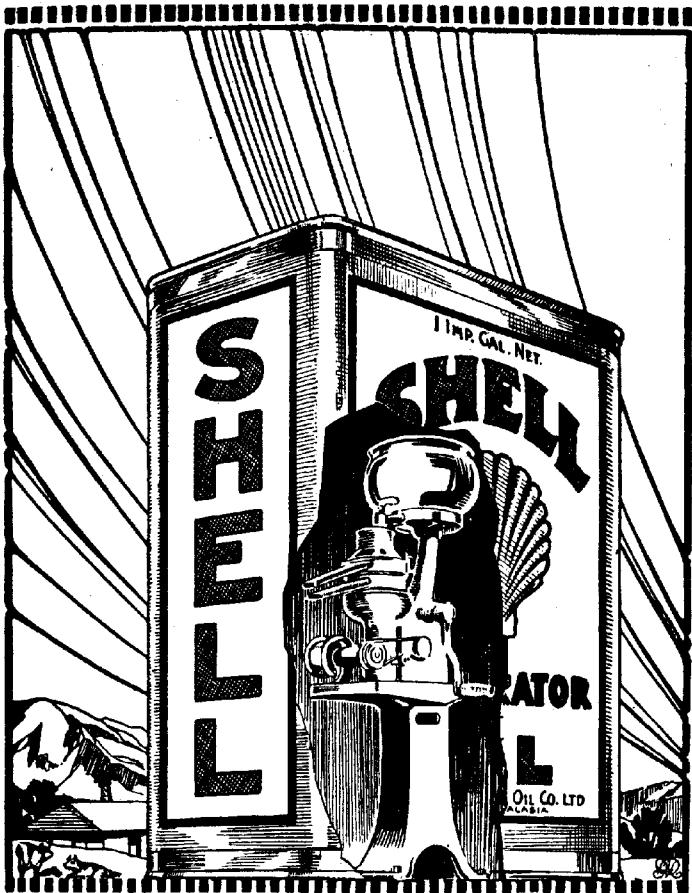
It will be seen that after making every allowance for working the land, putting in and taking off the crop, inclusive of rent for 18 months, there is still general expenditure representing incidentals and overhead charges to the extent of £139 15s. 3d. This works out to 12s. 5d. an acre, or 5s. 8d. per ton on the 1922-23 crop; or, again, 14 per cent. on the total expenditure incurred in raising and handling the crop. It seems to me that as a rule the usual estimates of cost of growing crops fail because they do not take into consideration these incidental overhead charges which are always incurred on every farm, but are rarely distributed over the revenue-earning accounts. It would seem that 15 per cent. would not be too high a figure to cover possible outlay under this heading.

It should be noted that labor enters into costs of production to the extent of 18.1 per cent. Payment has been on a mean basis of £3 4s. 7½d. a week, and the average working day has been 9½ hours. Similarly, horses have absorbed 17.4 per cent. of expenditure incurred on a cost basis of a little under 4d. an hour. Lastly, 7.1 per cent. of the expenditure is represented by wear and tear, depreciation, &c., of implements in use. These three items, therefore, are responsible for 42.6 per cent. of the cost of growing hay. Super., seed, and twine, on the other hand, account for 24.5 per cent., and rent for 18.9 per cent., the balance—14 per cent.—being general overhead charges.

THE WHEAT ACCOUNT.

I shall repeat that those portions of the crop that appeared least promising were not cut for hay, but reserved for grain; it follows that the results do not do full justice to the district from the point of view of wheat growing.

The area harvested for grain was represented by 202.53 acres, from which 3,055 bush. 37lbs. were reaped, representing 15 bush. 5lbs. per acre. The account shows a profit of £16 0s. 7d., or 1s. 7d. per acre. It should be stated that, as with hay, the wheat was transferred to



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"stores account" as soon as it was safe in the barn at the ruling price at the time, namely, 4s. 9d. a bushel.

A detailed analysis of expenditure incurred under this heading is shown below:—

1922-23 Wheat Account—Expenditure.

	£ s. d.			Per Acre.			Per Bush.		
	£	s.	d.	£	s.	d.	£	s.	d.
1921-22 fallows—									
Tillage operations	141	7	7	—	0	18 11-6	—	0	11-1
Rent (nine months)	83	3	0	—	0	8 2-5	—	0	6-5
				224	10	7	1	2	2
				(28-6 %)					1 5-6
Seeding operations—									
Tillage cultivating .. £10 19 10									
Harrowing		5	11 9						
Hand-hoeing		0	16 2						
				17	7	9	—	0	1 3
Drilling super., 18-77									
acres	1	13	3						
Marking out		0	12 6						
Broadcasting		1	1 8						
				3	6	11	—	0	3 6-8
Drilling super. and									
seed, 188-76 acres	32	7	2	—	0	3 6-8	—	0	2-8
	35	14	1	—	0	3 6-8	—	0	2-8
Super	109	7	7	—	0	10 9-6	—	0	8-6
Seed	78	13	7	—	0	7 9-2	—	0	6-2
				241	3	0	1	3	9-8
				(30-7 %)					1 6-9
Spring Tillage—									
Harrowing		2	4 3						
Rolling		0	9 8						
				2	13	11	—	0	0 2
				(0-3 %)					
Harvesting Operations—									
Reaping	69	8	2	—	0	6 10-2	—	0	5-4
Sowing bags	5	17	11	—	0	0 6-9	—	0	0-4
Carting wheat to barn	11	4	2	—	0	1 1-3	—	0	0-9
Bags	37	10	0	—	0	3 8-4	—	0	2-9
Twine	1	3	4	—	0	0 1-4	—	0	0-1
				125	3	7	0	12	4-3
				(15-9 %)					0 9-8
Incidentals—									
General	96	12	8						
Rates and taxes		7	4 7						
				105	17	3	0	10	5-4
				(13-5 %)					0 8-3
Rent (nine months)	—	86	9 8	0	8	6-5	0	18	11-9
				(11-0 %)					0 6-8
									1 3-1
Totals	—	£785	18 0	—	£3	17 7-2	—		5 1-6

Hence, a total expenditure of £785 18s. was incurred for sowing and reaping 202.53 acres, which yielded 15bush. 5lbs. to the acre: in summary, items of expenditure have been as follows:—

	£	s.	d.	Per cent.
1921-22 fallows ..	224	10	7	or 28.6
Seeding operations ..	241	3	0	or 30.7
Spring tillage ..	2	13	11	or 0.3
Harvesting operations ..	125	3	7	or 15.9
General ..	105	17	3	or 13.5
Rent (nine months) ..	86	9	8	or 11.0
	£785	18	0	or 100.0

The cost per acre (£3 17s. 7.2d.) and the cost per bushel (5s. 1.6d.) are higher than similar figures for 1921-22, namely, £3 and 4s. 6½d. respectively. They do not, however, admit of absolute comparison, because of the fact that 1921-22 crops were taken over at a valuation on 1st of July. The only figures that are comparable concern harvesting operations—12s. 4.3d. per acre in 1922-23 and 12s. 4d. in 1921-22, or 9.8d. per bushel in 1922-23 and 11.2d. in 1921-22. It should be added that these figures differ slightly from those of the profit and loss account because of the inclusion of rates and taxes, which do not figure in the profit and loss account, and because returns from feeding off of the crop have not been taken into account.

The account has been further analysed on the same lines as hay.

	Labor.			Horses.			Implements.			Total.			Percentage.
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Tillage of fallows	47	15	1	75	2	7	18	9	11	141	7	7	18-0
Seeding operations	14	14	5	28	9	5	9	18	0	53	1	10	6-8
Spring tillage	1	0	1	1	7	7	0	6	3	2	18	11	6-8
Harvesting operations	30	13	4	25	0	7	30	16	4	86	10	8	11-0
Super.	—	—	—	—	—	—	—	—	—	109	7	7	13-9
Seed	—	—	—	—	—	—	—	—	—	78	13	7	10-0
Bags	—	—	—	—	—	—	—	—	—	37	10	0	4-8
Sewing twine	—	—	—	—	—	—	—	—	—	1	3	4	0-1
General	—	—	—	—	—	—	—	—	—	98	12	8	12-6
Rates and taxes	—	—	—	—	—	—	—	—	—	7	4	7	0-9
Rent (18 months)	—	—	—	—	—	—	—	—	—	169	12	8	21-6
Totals	£94	2	11	£130	0	2	£59	10	6	£785	18	0	100-0
Percentage	12-0			16-5			7-6			—			—
Per Acre.													
	Labor.			Horses.			Implements.			Total.			
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Tillage of fallows ..	0	4	8.5	0	7	5	0	1	9.9	0	13	11.5	
Seeding operations ..	0	1	5.4	0	2	9.7	0	0	11.7	0	5	2.8	
Spring tillage ..	0	0	1.2	0	0	1.6	0	0	0.4	0	0	3.2	
Harvesting operations ..	0	3	0.3	0	2	5.7	0	3	0.4	0	8	6.4	
Super.	—	—	—	—	—	—	—	—	—	0	10	9.6	
Seed	—	—	—	—	—	—	—	—	—	0	7	9.2	
Bags	—	—	—	—	—	—	—	—	—	0	3	8.4	
Sewing twine	—	—	—	—	—	—	—	—	—	0	0	1.4	
General	—	—	—	—	—	—	—	—	—	0	9	8.9	
Rates and taxes	—	—	—	—	—	—	—	—	—	0	0	8.6	
Rent (18 months) ..	—	—	—	—	—	—	—	—	—	0	16	9	
Totals	£0	9	3.5	£0	12	10	£0	5	10.3	£3	17	7	
Per Bushel.													
	Labor.			Horses.			Implements.			Total.			
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Tillage of fallows ..	0	0	3.7	0	0	5.9	0	0	1.5	0	0	11.1	
Seeding operations ..	0	0	1.2	0	0	2.3	0	0	0.7	0	0	4.2	
Spring tillage ..	—	—	—	—	—	—	—	—	—	—	—	—	
Harvesting operations ..	0	0	2.4	0	0	2	0	0	2.4	0	0	6.8	
Super.	—	—	—	—	—	—	—	—	—	0	0	8.6	
Seed	—	—	—	—	—	—	—	—	—	0	0	6.2	
Bags	—	—	—	—	—	—	—	—	—	0	0	2.9	
Sewing twine	—	—	—	—	—	—	—	—	—	0	0	0.1	
General	—	—	—	—	—	—	—	—	—	0	0	7.8	
Rates and taxes	—	—	—	—	—	—	—	—	—	0	0	0.6	
Rent (18 months) ..	—	—	—	—	—	—	—	—	—	0	1	1.3	
Totals	£0	0	7.3	£0	0	10.2	£0	0	4.6	£0	5	1.6	

In the matter of wheat for grain, therefore, labor absorbed 12.0 per cent., horses 16.5 per cent., and implements 7.6 per cent. of total expenditure incurred, or in sum total 36.1 per cent. as against 42.6 per cent. for hay for the same items.

Purchased articles—super. 13.9 per cent., seed 10.0 per cent., bags 4.8 per cent., sewing twine 0.1 per cent.—absorb jointly 28.8 per cent., as against 24.5 per cent. for hay.

Finally, rates and overhead charges aggregate 13.5 per cent., as against 14 per cent. for hay and rent 21.6 per cent., as against 18.9 per cent. for hay.

BARLEY ACCOUNT.

In the winter of 1922 about 131 acres of stubble land was broken-up and sown to six-row barley. At harvest time only 12bush. 37lbs. to the acre were gathered in. This is, of course, a very low average, and resulted in a loss on the account of £52 4s. 8d., or 8s. an acre, notwithstanding the fact that grain was taken over by the stores account at 2s. 7d. a bushel. The low yield is apparently attributable partly to poor growth, also to unsatisfactory harvest conditions, which led to much shaking out of the grain.

Details concerning expenditure under this account are shown herewith:—

Barley Account—Expenditure 1922-23.

	Total.		Per Acre.				Per Bush.		Per Cent.
	£	s. d.	£	s. d.	£	s. d.	£	s. d.	
Preparation of land—									
Burning off stubble ..	1	10 7	—	0 2 8	—	0 0 2	—	—	—
Ploughing	42	17 11	—	6 6 6	—	0 6 2	—	—	—
Cultivating	8	3 10	47	12 4	0 5 8	0 7 3 2	0 0 5	0 6 9	17.5
Seeding operations—									
Drilling	21	9 5	—	3 3 3	—	0 3 1	—	—	—
Super.	39	14 1	—	6 0 7	—	0 5 7	—	—	—
Seed	16	1 1	—	2 5 4	—	0 2 3	—	—	28.3
			77	4 7	0 11	9 5	0 11 1		
Harvesting operations—									
Reaping	31	3 3	—	—	—	0 4 4	—	—	—
Bags	8	0 6	—	—	—	0 1 1	—	—	—
Sewing twine	0	14 2	—	0 1 3	—	—	—	—	—
Sowing bags	3	11 9	—	0 6 5	—	0 0 6	—	—	—
Carting to barn	6	16 1	—	1 0 5	—	0 0 9	—	—	18.5
			50	5 9	0 7	8 1	0 7 0		
Incidentals—									
General	33	16 11	—	5 2 0	—	0 4 8	—	—	—
Rates and taxes	4	13 4	—	0 8 5	—	0 0 7	—	—	14.1
			38	10 3	0 5	10 5	0 5 5		
Rent (nine months) .	—	—	58	17 2	0 8	11 8	0 8 5	—	21.6
Totals	—	—	£272	10 1	—	£2 1 7	—	3 31.	100.0

Expenditure per acre attained to £2 1s. 7d.; in which preparation of the land was responsible for 17.5 per cent., seeding operations for 28.3 per cent., harvesting operations for 18.5 per cent., incidentals for 14.1 per cent., and rent for 21.6 per cent. Owing to the low yield the cost per bushel was unavoidably high, 3s. 3d.

Last year, with a yield in excess of 19bush., the cost per acre was £2 4s. 8d., and the cost per bushel 2s. 3½d.

From a different point of view this account admits of analysis as follows:—

Analysis of Barley Expenditure.

	Labor.			Horses.			Implements.			Total.			Percentage.
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Preparation of land	12	1	8	30	5	10	5	4	10	47	12	4	*17.5
Seeding operations	5	0	3	12	3	5	4	5	9	21	9	5	7.9
Harvesting operations	14	15	9	14	0	7	12	14	9	41	11	1	15.2
Super.	—	—	—	—	—	—	—	—	—	39	14	1	14.6
Seed	—	—	—	—	—	—	—	—	—	16	1	1	5.9
Bags	—	—	—	—	—	—	—	—	—	8	0	6	2.9
Sewing twine	—	—	—	—	—	—	—	—	—	0	14	2	0.3
General	—	—	—	—	—	—	—	—	—	33	16	11	12.4
Rates and taxes	—	—	—	—	—	—	—	—	—	4	13	4	1.7
Rent	—	—	—	—	—	—	—	—	—	58	17	2	21.6
Totals	£31	17	8	£56	9	10	£22	5	4	£272	10	1	100.0
Percentage	11.7			20.7			8.2			—			—

	Labor.			Horses.			Implements.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Preparation of land	0	1	10.1	0	4	7.5	0	0	9.6	0	7	3.2
Seeding operations	0	0	9.2	0	1	10.3	0	0	7.9	0	3	3.4
Harvesting operations	0	2	3.1	0	2	1.7	0	1	11.3	0	6	4.1
Super.	—	—	—	—	—	—	—	—	—	0	6	0.7
Seed	—	—	—	—	—	—	—	—	—	0	2	5.4
Bags	—	—	—	—	—	—	—	—	—	0	1	2.7
Sewing twine	—	—	—	—	—	—	—	—	—	0	0	1.3
General	—	—	—	—	—	—	—	—	—	0	5	2.0
Rates and taxes	—	—	—	—	—	—	—	—	—	0	0	8.5
Rent	—	—	—	—	—	—	—	—	—	0	8	11.8
Totals	£0	4	10.4	£0	8	7.5	£0	3	4.8	£2	1	7

	Labor.			Horses.			Implements.			Total.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Preparation of land	0	0	1.7	0	0	4.4	0	0	0.8	0	0	6.9
Seeding operations	0	0	0.7	0	0	1.8	0	0	0.6	0	0	3.1
Harvesting operations	0	0	2.1	0	0	2	0	0	1.8	0	0	5.9
Super.	—	—	—	—	—	—	—	—	—	0	0	5.7
Seed	—	—	—	—	—	—	—	—	—	0	0	2.3
Bags	—	—	—	—	—	—	—	—	—	0	0	1.1
Sewing twine	—	—	—	—	—	—	—	—	—	—	—	—
General	—	—	—	—	—	—	—	—	—	0	0	4.8
Rates and taxes	—	—	—	—	—	—	—	—	—	0	0	0.7
Rent	—	—	—	—	—	—	—	—	—	0	0	8.5
Totals	£0	0	4.5	£0	0	8.2	£0	0	3.2	£0	3	3

Thus, then, labor at 4s. 10.4d. per acre, horses at 8s. 7.5d., and implements at 3s. 4.8d. aggregate 16s. 10.7d., or 40.6 per cent. of total expenditure incurred in handling a second crop of barley.

Super., seed, bags, and twine—9s. 10d. per acre in the aggregate—account for 23.7 per cent. of the expenditure, incidentals for 14.1 per cent., and rent for 21.6 per cent.

Expenditure analysed on a bushel basis shows how costly is a low yielding crop in any circumstances, and how impossible it is to grow it at a profit at current prices.

Pig Account.

This account, which yielded a profit of £53 17s. 10d. last year, closed in 1922-23 with a debit balance of £304 11s. 9d. A careful analysis of the account should indicate the causes of 1922-23 losses.

Expenditure incurred may be analysed as follows in comparison with expenditure incurred in 1921-22. It should be recalled that the latter period covered nine months only:—

Pig Account Analysis of 1922-23 Expenditure in Comparison with that of 1921-22.

	1922-23 EXPENDITURE.				1921-22 EXPENDITURE.			
	£ s. d.		Total.	Percentage.	9 Months.		12 Months (calculated).	
					£ s. d.		£ s. d.	
Labor	—		113 15 7	19.6	82 0 6		109 6 8	
Foodstuffs, &c.—								
P't meal	15	5 9						
Wheat (435bush.)	102	15 9						
Barley (1,040bush.)	148	14 0						
Oats (372bush.)	51	9 5						
Milk	19	11 11						
A'stment	5	6 10						
Water	2	4 8						
			345 8 4	59.7	216 9 9		288 13 0	
Incidentals—								
Use of horses	8	4 7						
Use of implements, &c.	1	8 0						
Sundries	6	5 0						
General	95	17 9						
Rates and taxes	0	14 3						
			107 9 7	18.6	65 19 10		87 19 9	
Depreciation on buildings	—		1 16 2	0.3	1 6 10		1 15 9	
Rent	—		10 5 1	1.8	14 0 7		18 14 1	
Totals	—		£578 14 9	100.0	£379 17 0		£506 9 8	

It will be noted that relatively to 1921-22 expenditure referred to a 12 months' basis, the 1922-23 expenditure shows an increase of £72 5s. 6d., or 14.3 per cent. Chief items showing increases are "incidentals," £19 9s. 10d. or 22.2 per cent., and "foodstuffs," £56 15s. 4d. or 19.7 per cent.

In actual expenditure we note that foodstuffs (£345 8s. 4d.) account for 59.7 per cent. and labor (£113 15s. 7d.) for 19.6 per cent.

On the other hand, there has been a big decrease in the value of the herd between March 31st, 1922 (£357 17s.), and March 31st, 1923 (£193 9s.). This decrease in value is attributable partly to reduction in prices, but chiefly to reduction in numbers, particularly of marketable pigs.

Revenue, on the other hand, has been as follows in the two years:—

	1922-23.	1921-22 (9 Months).
	£ s. d.	£ s. d.
Sale of Breeding Stock—		
5 boars	£24 14 10	
5 sows	28 14 8	
300 market pigs	53 9 6	94 16 6
Household purchases . .	366 3 11	159 8 3
Service fees	7 3 4	0 17 1
Prizes	2 0 0	4 5 0
	9 0 0	7 10 0
Totals	£437 16 9	£266 16 10

Revenue in 1922-23 was, therefore, £170 19s. 11d. in excess of nine months' revenue of 1922-23, or £82 1s. if we assume 12 months' revenue to correspond to £355 15s. 9d. This would represent an increase in revenue of about 23 per cent., which more than balances an increased expenditure of 14.3 per cent.; it follows that the loss under this account is connected partly with the condition of the herd at the time of valuation and partly with a general fall in prices.

W. & W., 890

Cyclone

METAL GATES AND FENCES

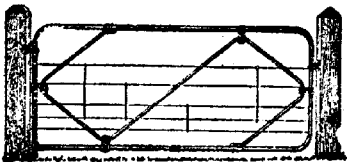


Fig. 201.—Cyclone "Z" Gate.

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SHEEP ACCOUNT.

After due allowance for proportion of rates and taxes, the sheep account shows a credit balance of £155 0s. 8d.

Expenditure incurred under this account may be summarised as follows:—

Sheep Account.

		1922-23.	1921-22.
	£ s. d.	£ s. d.	£ s. d.
Labor—			
Ordinary	56 4 11		
Shearing	10 16 10		
Dipping	0 16 5		
	<hr/>	67 18 2	71 9 3
Feed—			
Rent of grazing areas . . .	247 3 4		
Crop grazing	2 16 2		
Chaff, oats, and hay	9 7 3		
Water	2 6 1		
	<hr/>	261 12 10	150 10 5
Dip, packs, &c.	—	5 12 1	7 6 10
Incidentals—			
Use of horses	6 17 11		
Tools and plant	0 15 9		
Rates and taxes	17 5 5		
General	77 3 1		
	<hr/>	102 2 2	68 16 6
Purchases—			
200 ewes	216 10 9		
2 rams	8 8 0		
	<hr/>	224 18 9	29 18 6
Totals		£662 4 0	£328 1 6

Sales, on the other hand, were as follows:—

		1922-23.	1921-22.
	£ s. d.	£ s. d.	(9 Months). £ s. d.
342 lambs	415 10 3		
20 rams	54 8 0		
72 ewes	56 16 4		
Household	35 7 9		
Sheepskins	8 4 4		
Prizes	7 16 6		
Wool	125 5 6		
	<hr/>	703 8 8	388 11 7

The difference between sales and expenditure was, therefore, only £41 4s. 8d.; included in the latter, however, was the purchase of 200 young ewes and two rams. Hence, the value of the flock on March 31st had risen to the extent of £113 16s., and representing a general net profit of £155 0s. 8d.

The flock consisted on March 31st, 1923, of—

Rams	26
Border Leicester ewes	30
Merino ewes	198
Crossbred ewes	274
Ration sheep	34
Total	562

STORES ACCOUNT.

It has already been explained that all farm produce not sold as soon as available is transferred at a valuation to this account. It follows that profits or losses are made in this account according as prices rise or fall after valuation. Similarly, produce may deteriorate in quality and even quantity during storage, both of which contingencies might lead to apparent losses.

In 1922-23 the stores account shows a credit balance of £173 19s. 3d.

CATTLE ACCOUNT.

Cattle occupy a position of minor importance at Turretfield. The account closed with a net profit of £22 11s. 1d., or after deduction of estimated proportion of rates and taxes, of £21 0s. 6d.

Summarised expenditure has been as follows:—

	£	s.	d.
Rent of grazing land	21	8	7
Wages	71	5	11
Use of horses and implements	2	15	8
Foodstuffs—			
Chaff	£50	2	6
Barley	9	12	6
Water	1	3	3
Bran	1	6	10
		62	5 1
Incidentals—			
General	30	17	10
Depreciation on buildings	0	16	3
Rates and taxes	1	10	7
		33	4 8
		£190	19 11

Sales, on the other hand, amounted to £217 10s. 5d., consisting mostly of milk and cream.

POULTRY ACCOUNT.

The poultry account showed a profit balance of £41 6s. 3d. Sales amounted to £43 10s. 9d. and expenses to £2 4s. 6d.

**ACCOUNTS NOT APPEARING IN THE PROFIT AND LOSS ACCOUNT.
WORKING HORSES.**

The cost of various farm operations is naturally affected by the cost of the upkeep of working horses and by the number of hours that they may be at work during the course of the year.

Expenditure for 1922-23 may be summarised as follows:—

	£	s.	d.	£	s.	d.
Valuation of horses (1/4/22)	—			384	0	0
Foodstuffs	357	11	8			
Agistment	16	18	5			
Rent of grazing land	53	12	6			
Water	3	14	0			
Shoeing, &c.	10	3	3			
Wages	58	9	7			
Depreciation on buildings and plant	27	14	7			
Sundries	3	3	10			
				531	7	10
				915	7	10
Less valuation of horses (31/3/23)	—			413	0	0
				£502	7	10

Net cost of the horses was, therefore, £502 7s. 10d. for 12 months, during which period they supplied 27,248 hours of work. The cost per hour would, therefore, be 4.425d., or 2s. 11.4d. per eight-hour day.

I shall recall that in the present accounts, owing to the omission of charge for rent in this account, the unit used for calculating the cost of horses in farm operations was 3.927d. per working hour.

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DEPRECIATION.

Depreciation for 1922-23 may be summarised as follows:—

	£	s.	d.
Buildings	66	9	1
Fencing	70	3	10
Water service	3	16	6
Tools and plant	219	7	1
	<hr/>		
	£359	16	6

FARM FALLOW.

Expenditure on 424 acres of farm fallows to March 31st, 1923, was as follows:—

	£	s.	d.	£	s.	d.	£	s.	d.	Per Acre.
										£ s. d.
Tillage operations—	£	s.	d.	£	s.	d.	£	s.	d.	
Wages	59	11	6							
Horses	167	7	8							
Implements	35	16	8							
	<hr/>			262	15	10	—			0 12 5
Rent	—			191	10	4				
	<hr/>						454	6	2	1 1 5
Drilling super. in 107 acres—										
Wages	4	6	9							
Horses	11	1	10							
Implements	2	15	1							
	<hr/>			18	3	8	—			0 3 5
Super	—			46	8	8				
	<hr/>						64	12	4	0 12 1
	<hr/>						£518	18	6	

Thus, then, to the 31st of March, and, therefore, on the eve of seeding, bare fallow involved an expenditure of 21s. 5d. per acre (inclusive of nine months' rental); an additional 12s. 1d. per acre was incurred on 107 acres for drilling in super. ahead of the seed.

HOUSEKEEPING ACCOUNT.

Living expenses for manager and his family, also portion of the farm staff, have been met from farm revenue. Expenditure incurred under this heading has been as follows:—

	£	s.	d.
Wages	71	3	9
Provisions	92	16	10
Farm produce	87	7	7
Water	6	10	0
Kerosene and sundries	4	16	9
Firewood	5	11	8
Depreciation	47	5	7
	<hr/>		
	£315	12	2

This expenditure corresponds to 2s. 2.237d. per day, or 15s. 3.659d. per week, or £39 18s. 0.5d. per annum per individual. I think this figure points to extremely careful housekeeping.

GENERAL ACCOUNT.

On any farm, and, indeed, in any business, expenditure is occasionally incurred which cannot reasonably be debited against any specific account. Such expenditure we have debited to general, and at the end of the year have distributed the sum total among the revenue-earning accounts in proportion to the expenditure incurred under each account.

This expenditure may be summarised as follows for 1922-23:—

	£	s.	d.
Wages	137	1	9
Horses	14	7	9
Tools and plant	9	13	3
Repairs to water main	22	5	4
Portion of manager's salary	185	17	5
Depreciation	75	7	8
Various	101	6	7
	<hr/>		
	£545	19	9

Usually, to these overhead charges—£545 19s. 9d.—one would need to add rates and taxes, namely, £50 17s. The new total—£596 16s. 9d.—represents about 7s. 5d. on 1,604 acres.

SUMMARY.

The salient points in this report admit of being summarised as follows:—

1. Generally speaking, the 1922-23 season at Turretfield was slightly below normal.
2. The gross earnings of the farm, exclusive of interest on fixed and floating capital, were £1,351 8s. 6d. This sum represents 7.68 per cent. on the capital engaged, namely, £17,590 18s. 2d.
3. If we assume the manager to be owner of the farm, after allowing 5 per cent. on fixed and floating capital and keeping himself and family for 12 months, the 1922-23 returns would have been equivalent to £657 15s. in the way of net earnings.
4. Finally, the net profit to the farm was represented by £522 14s. 7d. after payment of £879 10s. 11d. towards interest on fixed and floating capital and £300 towards management.
5. The combined net profits for the first 21 months aggregate £921 6s. 1d.
6. The hay yield was 2 tons 3cwt. 35lbs. to the acre.

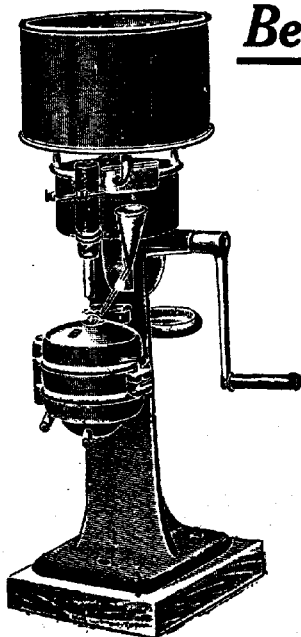
7. The net profit from 225.93 acres of hay, including estimated rates and taxes, was £475 15s. 3d., or £2 2s. 1d. an acre.

8. The inclusive cost of raising, harvesting, and stacking 2 tons 3cwt. 35lb. of wheaten hay was represented by £4 8s. an acre, or £2 0s. 7d. a ton.

9. The cost may be summarised as follows:—

	Per Acre.	Per Ton.	Percentage.
	£ s. d.	£ s. d.	
Rent	0 16 7.6	0 7 8.1	18.9
Fallowing	0 9 3.6	0 4 3.5	10.6
Seeding operations	1 6 3.6	0 12 1.7	29.9
Spring tillage	0 0 5.8	0 0 2.6	0.6
Harvesting operations . .	1 2 10.7	0 10 6.9	26.0
General	0 12 4.5	0 5 8.3	14.0
	£4 8 0	£2 0 7	100.0

10. About 202.53 acres were reaped for wheat, yielding 15bush. 5lbs. per acre. The poorest portions of the crops were cut for grain, the balance being left for hay.



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11. The net profit on this crop was only £16 0s. 7d., or 1s. 7d. an acre, exclusive of rates and taxes.

12. The inclusive cost of growing, harvesting, and carting to the barn a 15bush. 5lb. harvest was represented by £3 17s. 7d. per acre, or 5s.1.6d. per bushel.

13. Costs may be summarised as follows:—

	Per Acre.	Per Bush.	Percentage.
	£ s. d.	£ s. d.	
Rent	0 16 9	0 1 1.3	21.6
Fallowing	0 13 11.5	0 0 11.1	18.0
Seeding operations	1 3 9.6	0 1 7.0	30.7
Spring tillage	0 0 3.2	—	0.3
Harvesting operations . . .	0 12 4.2	0 0 9.8	15.9
General	0 10 5.5	0 0 8.4	13.5
	£3 17 7	£0 5 1.6	100.0

14. Six-row barley was grown as a second crop on 131 acres of the previous year's stubbles. Only 12bush. 37lbs. to the acre was reaped, mainly owing to harvesting difficulties.

15. On this crop there was a loss of 8s. an acre.

16. Costs incurred may be summarised as follows:—

	Per Acre.	Per Bush.	Percentage.
	£ s. d.	£ s. d.	
Rent	0 8 11.8	0 0 8.5	21.6
Preparation of land	0 7 3.2	0 0 6.9	17.5
Seeding operations	0 11 9.5	0 0 11.1	28.4
Harvesting operations . . .	0 7 8.1	0 0 7.0	18.4
General	0 5 10.5	0 0 5.5	14.1
	£2 1 7	£0 3 3	100.0

17. The above results stress the unprofitableness of a low yielding crop.

18. The pig account, which showed a profit of £53 17s. 10d. in 1921-22, closed at a loss of £304 11s. 9d. in 1922-23.

19. The chief reason for this loss is a fall in price and reduction in numbers at the time of closing valuation.

20. Total expenditure incurred over pigs was £578 14s. 9d., which may be summarised as follows:—

	£ s. d.
Labor	113 15 7
Foodstuffs	345 8 4
Rent	10 5 1
Sundries and general	109 5 9
	£578 14 9

21. The total receipts were £437 16s. 9d., and the difference between opening and closing valuation £164 8s.

22. After *pro rata* allowance for rates and taxes, the sheep account showed a profit of £155 0s. 8d. for 1922-23.

23. Total expenditure, apart from new purchases, amounted to £437 5s. 3d., and may be summarised as follows:—

	£	s.	d.
Labor	67	18	2
Feed, &c.	261	12	10
General and sundries	107	14	3
	<hr/>		
	£437	5	3

24. Sales aggregated £703 8s. 8d.

25. Stores account, to which is transferred all farm produce not immediately offered for sale, closed at a profit of £173 19s. 3d.

26. Cattle and poultry accounts showed profits of £22 11s. 1d. and £41 6s. 3d. respectively.

27. The cost of upkeep of working horses, inclusive of depreciation, was equivalent to 4.425d. per working hour, or nearly 3s. per eight-hour working day.

28. Depreciation on buildings, plant, &c., has been allowed for to the extent of £359 16s. 6d. for 1922-23.

29. The cost of tillage operations on farm fallows to March 31st was 12s. 5d. an acre; if we add to this figure nine months' rent, it becomes 21s. 5d. an acre.

30. Drilling super. in early autumn, before seeding time, cost 3s. 5d. an acre, exclusive of cost of super.

31. Household expenditure on the farm has been at the rate of 2s. 2.237d. a day, or 15s. 3.659d. per week, or £39 18s. 0.5d. per annum per individual.

32. General expenses that could not be brought under any particular account amounted to £596 16s. 9d., or 7s. 5.3d. per acre on the whole farm. These expenses have been debited against the various revenue-earning accounts proportionally to expenditure incurred under each of them.

33. I must again congratulate the manager (Mr. F. E. Waddy) on the very satisfactory results of the balance-sheet.

TURREFIELD DEMONSTRATION FARM.

PROFIT AND LOSS ACCOUNT.

April 1st, 1922, to March 31st, 1923.

Debit.	£	s.	d.	Credit.	£	s.	d.
Barley crops	52	4	8	Wheat crops	16	0	7
Livestock—				Hay crops	576	11	4
Pigs	304	11	9				
Interest on floating capital, 5 per cent. on £3,353 18s. 2d.	167	13	11	Livestock—			
Less difference between interest on current account and interest on overdraft.	44	8	11	Pigs	22	11	1
				Sheep	172	6	1
				Poultry	41	7	8
Net profit	123	5	0	Stones account—			
	522	14	7	Hay, grain, &c.	173	19	3
	£1,002	16	0		£1,002	16	0

July 20th, 1923

L. S. SMITH, Accountant.

TURREFIELD DEMONSTRATION FARM.

BALANCE-SHEET AS AT MARCH 31ST, 1923.

Liabilities.				Assets.			
	£	s.	d.		£	s.	d.
Value represented by land and improvements	14,927	0	0	Cash in bank (Treasury deposit account)	—	—	2,480
Value represented by advance for floating capital	3,353	18	2	Cash in hand	—	—	17
Bank advance (Treasury, revenue account)	—	—	0	Sundry debtors	—	—	35
Sundry creditors	350	16	5	Land	10,779	0	0
Add interest on fixed capital	711	17	0	Buildings and improvements	42	2	11
Add interest on floating capital	167	13	11	Plant and improvements	53,481	4	3
Manager's salary (proportion)	185	17	5	Less depreciation	230	19	11
	1,416	4	9		3,250	4	4
Less difference between interest on current account and interest on overdraft	44	8	11	Tools and plant	—	—	14,071
				Farm produce	—	—	1,117
Net profits—				Manures	—	—	19
Period ended March 31st, 1922	398	11	6	Livestock—	—	—	17
Year ended March 31st, 1923	522	14	7	Horses	—	—	87
				Cows	413	0	0
				Pigs	190	0	0
				Sheep	193	8	0
				Poultry	566	8	0
				Poultry	7	10	0
				Fallow	—	—	1,260
				Stubble	—	—	35
				Housekeeping stores	—	—	2
				Sundries	—	—	1
					—	—	281
							3
							0
							1
							223,084
							0
							1

July 20th, 1923.

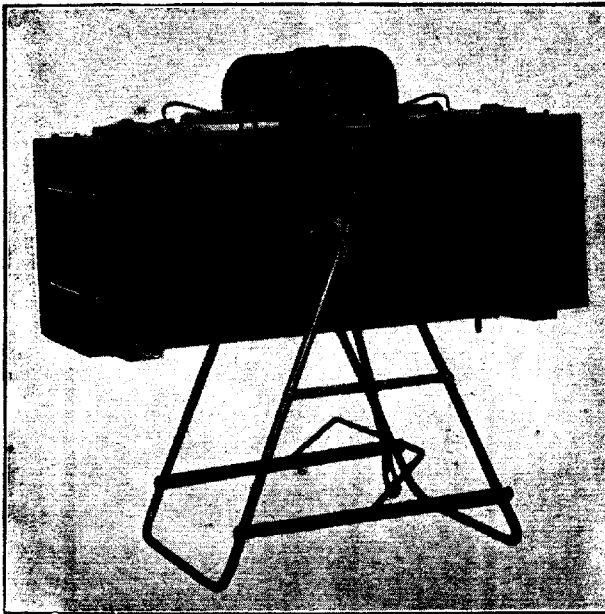
L. S. SMITH, Accountant.

AN EFFECTIVE WHEAT PICKLING MACHINE.

[By ARTHUR J. PERKINS, Director of Agriculture.]

We often hear of bunt in wheat crops, the seed of which is supposed to have been effectively pickled. Nevertheless, if the pickle has been used at the right strength, and if each wheat grain has been thoroughly "wetted" by it, apart from occasional soil re-infection, there should be little or no bunt in the crop.

Frequently, in my opinion, lack of success in pickling is to be attributed to the way with which the pickle is applied rather than to the nature or strength of the pickle itself. Thus, merely dipping a wheat-



No. 1.

butt into a cask containing pickle, and leaving it there for a few minutes, does not in any way insure that each grain is thoroughly "wetted" by the pickle. As a matter of fact the surface of the grain is more or less greasy in character, and water seems to slip over it readily or to adhere to it loosely in the form of numerous minute air bubbles beneath which the surface remains dry. Hence, many a spore of bunt escapes contact with the pickle and lives to germinate later on in the field in contact with the grain.

It is these facts which, in my opinion, render floor pickling more effective than the various mechanical methods hitherto recommended. Unfortunately, it is a long and laborious process which we would willingly avoid if we could. Personally, for many years I have held the opinion that if floor pickling was ever to be effectively



No. 2.

superseded it would be by some form or other of a rotary pickling machine. On the suggestion of Mr. H. J. Apps, we endeavoured to use for the purpose an old rectangular butter-churn, which although quite effective from the point of view of the distribution of the pickle, was too slow for general purposes.

Quite recently, however, I have come across a new type of rotary pickler, the invention of a South-Eastern farmer—Mr. J. McGillivray—which appears to me to have solved pickling difficulties very effectively.

It consists of a long, rectangular, watertight, wooden box, divided into three compartments by two sloping brass screens, one of which is shown in illustration herewith. The box is mounted on a triangular iron frame around which it rotates freely. An ingenious lever-stop arrangements enables one to place the box in the various positions indicated in the illustrations.



No. 3.

The pickler is adapted to pickle one bag at a time, one half being placed in one compartment and the other in the opposite one.

When filling the pickler the box is brought to position 2; the doorway is thrown back and from $2\frac{1}{2}$ to 3 gallons of 1 per cent. bluestone pickle should be poured into it. I indicate this quantity because in our experience it takes $2\frac{1}{2}$ gallons of solution to floor pickle effectively one bag of wheat; a slight excess of solution will do no harm. Half a bag of wheat should then be emptied into the open compartment, and

the door closed down. The box should then be reversed and a second half bag emptied into the opposite compartment. The box should then be made to rotate slowly around its axis; a slight push will bring this about. As the box rotates the grain will be thrown violently against its sides and be brought effectively in contact with the pickle. Four or five minutes rotation should suffice for the purpose.

The box is then brought to position 3, the trap-door opened and the grain made to slide into a bag attached beneath the central lip. It is then reversed and the grain from the opposite compartment emptied out in the same way.

The whole mechanism is exceedingly simple and should, in my opinion, prove very effective for pickling wheat either with solutions of bluestone or formalin, or even with a dry powder like copper carbonate.

THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

THIRTY-FOURTH ANNUAL CONGRESS.

The thirty-fourth Annual Congress of the Agricultural Bureau of South Australia is to be held in the Victoria Hall, Gawler Place, Adelaide, on September 10th, 11th, and 12th.

Proceedings will be opened by His Excellency the Governor (Sir Geo. T. M. Bridges, K.C.M.G., C.B., D.S.O.), at 8 p.m., on Monday, September 10th. The Minister of Agriculture (Hon. G. F. Jenkins, M.P.) will also speak at the opening session. During the course of the Congress addresses are to be delivered by the Superintendent of Experimental Work (Mr. W. J. Spafford), on "Cultivation of the Soil"; the Wool Instructor (Mr. A. H. Codrington), "The Wool Industry"; the Assistant Dairy Expert (Mr. H. J. Apps), "Principles Underlying Dairying"; and the Experimentalist, Roseworthy Agricultural College (Mr. R. C. Scott) on "The Breeding of Fat Lambs from Merino and Half-bred Longwool-Merino Ewes."

A selection will be made from a number of papers submitted by members of Branches, and these will be included in the agenda, as will also a number of questions and resolutions which will be dealt with in "Free Parliament."

AGRICULTURAL CONFERENCE AT MORCHARD.

Branches of the Agricultural Bureau situated in the Upper Northern district of the State met in Conference at Morchard on Wednesday, July 25th. The Minister of Agriculture (Hon. G. F. Jenkins, M.P.) was present, and the Department of Agriculture was represented by the Superintendent of Experimental Work (Mr. W. J. Spafford), the Government Dairy Expert (Mr. P. H. Suter), the Wool Instructor, School of Mines, (Mr. A. H. Codrington), and the Secretary Advisory Board of Agriculture (Mr. H. J. Finnis). Mr. N. S. Lillecrapp (Morchard) occupied the chair, and approximately 100 delegates representing the Branches situated in the Upper Northern area were present. The chairman extended a cordial welcome to the visiting officers and delegates, and trusted they would gain much information that would be useful in carrying out their farming operations. The Minister of Agriculture (Hon. G. F. Jenkins, M.P.), in the course of the opening address, eulogised the work that the Agricultural Bureau was doing for the man on the land. That institution, he said, had served a very useful purpose in the development of South Australia. The men on the land could come together and discuss the various difficulties with which they met, and they could also get into touch with the various officers of the Department of Agriculture through the Agricultural Bureau. He had noticed the absence of stock, and sheep particularly, in the northern district. With the possibility of lower prices for wheat he thought it would be well for them to turn their attention to other commodities, and especially to livestock. If they wanted to carry more stock they would have to turn their attention to hand-feeding on their farms. He was of the opinion that oats and barley could be more profitably sold as mutton than as cereals. Also, if they could tide over that period of two or three months when feed was scarce, they would be able to carry a greater number of stock and breeding ewes throughout the year. He thought that the hand-feeding of stock was a matter to which they should apply themselves in a practical way.

CROP COMPETITIONS.

The Department of Agriculture was very desirous that crop competitions should be undertaken in South Australia. Their success would depend upon the enthusiasm with which they were taken up in the different districts. He thought the districts should take the matter up and form strong committees. The Bureaus could associate themselves with local Agricultural Societies. No good would result if the competitions were forced upon them. He had much pleasure in declaring the Conference open, and trusted much good would result from their deliberations.

Mr. A. L. Hughes (Willowie) then contributed a paper entitled "Mistakes of Overstocking," which was followed by a paper by Mr. H. Duhring (Wilmington) on "Cancer in Sheep and Cattle."

AFTERNOON AND EVENING SESSIONS.

Mr. J. Scriven (Morchard) opened the afternoon session by giving a demonstration of the handling of horses. This was followed by an address by Mr. A. H. Codrington (Wool Instructor, School of Mines), on "Sheep and Wool Classing," in the course of which he dealt with the most profitable and practical lines for farmers to adopt.

The evening session was commenced by a "Free Parliament." Mr. J. Scriven (Morchard) moved—"That the Advisory Board be asked to approach the Railways Commissioner with reference to the delay in the carriage of stock on the railways." Mr. R. Brown seconded the motion, which was carried.

Mr. J. F. Robertson moved—"That the Stock Department be asked to supply a report on the possibility of the transmission of cancer from animals or human beings." The motion was carried.

A paper entitled—"Combined Drill and Cultivator or Separate Implements" was contributed by Mr. H. Toop (Morchard), after which Mr. F. J. B. Scriven (Morchard) read a paper, entitled, "Superphosphate and some of its advantages," which was followed by a good discussion.

It was decided that the next Conference be held at Willowie.

**IMPORTS AND EXPORTS OF FRUIT, PLANTS, ETC.,
JUNE, 1923.**

IMPORTS.

Interstate.

Apples (bushels)	14,549
Bananas (bushels)	12,535
Lemons (bushels)	1
Oranges (bushels)	4
Passion fruit (bushels)	360
Pears (bushels)	10
Pineapples (bushels)	683
Tomatoes (bushels)	12
Peanuts (packages)	2
Beans (bushels)	3
Onions (bags)	1,232
Potatoes (bags)	23,194
Bulbs (packages)	10
Plants (packages)	43
Seeds (packages)	35
Trees (packages)	28
Wine casks, empty (number)	2,463

Fumigated—5 wine casks, 2 packages plants, 9 packages trees.

Rejected—3 bushels tomatoes, 3 bushels pineapples, 1 package plants, and 116 bags potatoes (picked over).

Overseas.

Federal Quarantine Act.

Five thousand and twenty-one packages seeds, &c.

EXPORTS.

Federal Commerce Act.

Four thousand one hundred and forty-seven packages citrus fruit, 136 packages other fresh fruit, 30,025 packages dried fruit, 200 packages preserved fruit, 12 packages jam, 7 packages honey, and 25 packages plants were exported to overseas markets. These were consigned as follows:—

London.

Dried fruit (packages)	26,530
Citrus fruit (packages)	2,104
Jam (packages)	12

New Zealand.

Dried fruit (packages)	1,946
Citrus fruit (packages)	2,043
Plants (packages)	23

Germany.

Dried fruit (packages)	2
Honey (packages)	4

India and East.

Dried fruit (packages)	381
Plants (packages)	2
Apples (packages)	130
Oranges (packages)	6
Honey (packages)	3
Preserved fruit (packages)	200

South Africa.

Dried fruit (packages)	1,165
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San Francisco.

Dried fruit (packages)	1
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RIVER MURRAY HERD TESTING ASSOCIATION.

RESULTS OF BUTTERFAT TESTS FOR JUNE, 1923.

Herd No.	Average No. of Cows in Herd.	Average No. of Cows in Milk.	Milk.			Butterfat.		
			Per Herd during June.	Per Cow during June.	Per Cow October to June.	Per Herd during June.	Per Cow during June.	Per Cow October to June.
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1/C	31-37	23-83	20964.5	668.30	6621.32	824.71	26.29	266.66
1/E	23	20-97	11689	508.22	5157.18	524.82	22.82	227.08
1/J	20-40	19-20	9779	479.36	4657.76	491.69	24.10	213.18
1/L	16-70	11-90	7831	468.92	4997.61	367.30	21.99	229.84
1/M	23	20-93	9322	405.30	4603.90	483.30	21.01	229.25
1/R	13-37	11-10	6790.5	507.90	4410.48	354.85	26.54	222.05
1/T	12-80	10-60	5658	442.03	4773.57	293.90	22.96	240.08
1/U	18	17	11400	633.33	5819.04	511.57	28.42	250.81
1/W	19-53	18-63	10536	539.48	5572.29	403.40	20.66	210.27
1/X	19-07	16-37	7423	389.25	4921.04	332.30	17.43	221.71
1/Y	25-90	22-37	14974.5	578.17	5583.81	656.60	25.35	241.55
1/Z	17	11-57	7289	428.76	4520.81	316.28	18.60	204.32
1/A*	6-23	6-23	3025.5	485.63	5660.29	142.36	22.85	247.39
1/B*	7-87	7-17	3504.5	445.30	4470.45	158.47	20.14	195.66
1/C†	15-60	11-67	6633.5	425.22	2916.15	305.79	19.60	125.34
1/V†	15	15	7665	511.00	2994.18	369.68	24.65	132.48
Means	17-80	15-28	9030.31	507.25	5248.80	408.56	22.95	231.72

* Entered in November, 1922. † Entered in December, 1922. ‡ Entered in February, 1923.

COWS YIELDING 1,000 GALLONS OF MILK OR 400 LBS. OF BUTTERFAT DURING A LACTATION PERIOD.

Name of Cow.	Owner.	No. of Days.	Milk.	Butterfat.
			Gallons.	Lbs.
Lorna	C. J. Morris, Monteith	319	1317.80	512.87
Manx	C. J. Morris, Monteith	292	1037.70	375.37
Yankee	C. J. Morris, Monteith	319	986.50	514.90
Nanzy	C. J. Morris, Monteith	311	1229.20	434.01
Tiny	C. J. Morris, Monteith	319	1002.40	465.33
Dot	H. H. Clark, Mypolonga	319	817.85	433.96
Pansy	H. H. Clark, Mypolonga	319	840.60	449.15

MT. GAMBIER AND DISTRICT HERD TESTING ASSOCIATION

RESULTS OF BUTTERFAT TESTS FOR JUNE, 1923.

Herd No.	Average No. of Cows in Herd.	Average No. of Cows in Milk.	Milk.			Butterfat.		
			Per Herd during June.	Per Cow during June.	Per Cow August to June.	Per Herd during June.	Per Cow during June.	Per Cow August to June.
2/A	20-53	6-37	Lbs. 1219-5	Lbs. 59-40	Lbs. 4678-66	Lbs. 61-10	Lbs. 2-98	Lbs. 201-81
2/B	7	4	2700	385-71	8124-07	107-79	15-40	339-23
2/C	19	14-67	6236-5	328-24	5950-03	238-98	12-58	240-15
2/D	13	8-90	3089	237-62	4532-05	118-67	9-13	181-14
2/E	11	7-67	2690	244-55	6172-77	115-73	10-52	273-80
2/F	20	12-63	6135	306-75	5223-54	237-20	11-86	212-75
2/G	2-93	0-5	240	81-91	7511-24	10-11	3-45	342-43
2/H	25-20	8-27	3142	124-68	4940-30	134-78	5-35	207-48
2/I	12	4-47	1547-5	128-96	5270-53	64-19	5-35	217-66
2/J	11	5-23	1427-5	129-77	7139-10	77-70	7-06	307-28
2/K	21	14-53	2682-5	127-74	5941-27	159-57	7-60	253-69
2/L	31	16-63	4195	135-32	4379-93	207-56	6-70	200-51
2/N	12	Nil	Nil	Nil	3719-85	Nil	Nil	150-90
2/O	40-63	21-30	8821	217-11	3886-05	333-83	8-22	159-37
2/Q	33	9-23	4308-5	130-56	4378-49	161-47	4-89	179-84
2/R	15-10	11-73	6930	458-94	8297-21	302-10	20-01	364-44
Means	18-40	9-13	3460-25	188-06	5211-26	145-67	7-92	219-53

COWS YIELDING 1,000GALLS. OF MILK OR 400LBS. OF BUTTERFAT DURING A LACTATION PERIOD.

Name of Cow.	Owner.	No. of Days.	Milk. Gallons.	Butterfat. Lbs.
Myra	E. W. Tollner, Mount Gambier ..	277	949-65	413-13
Willis	K. McIntosh, Mount Gambier ...	319	891-45	464-27
Slitter	E. W. Tollner, Mount Gambier ...	310	1056-30	423-00

ORCHARD NOTES FOR SOUTHERN DISTRICTS FOR AUGUST, 1923.

[By C. H. BEAUMONT, Inspector and Instructor.]

Pruning should be nearly if not quite finished. Remember, if you make any big cuts, to apply a coat of thick paint, after having trimmed the bark with a sharp knife. Before you put away the pruning tools see that they are thoroughly clean, especially the saw. Rub them over with a little blacklead and they will not rust.

If the first ploughing is completed, which it should have been had the weather been favorable, clean the plough and get it ready for the spring work.

Those who have strawberry beds should be busy getting them worked up and free from weeds and runners. Where wilting has occurred, the whole bed should be dug out and burned on the spot; the land must not be replanted for a few years. If any sign of mildew is noticed use lime sulphur spray $1\frac{1}{2}$ gallons in 100 gallons of fresh water. Keep the soil well worked and use lime in the ironstone soils. Watch the peach trees for aphid; they cannot be prevented but must be killed as soon as they appear. Resin wash and black leaf 40 are the best sprays to use. Woolly aphid on the apple trees will show up if the weather is suitable for its development. It should receive immediate attention.

Red spider eggs may be sterilised by using red spraying oil. Plums need extra care for this pest. If you have to spray, do it thoroughly. The eggs will be found under the bud scales and about all rough bark and joints and limbs. If you have very little of the pest use a paint brush instead of a pump.

Do not leave any bandages on the apple and pear trees, or any loose bark, or have any rubbish about the trees; clear it all up and burn it and thus save trouble with codlin moth.

If you have had a severe visitation of fungous pests, spray during this month with a solution of bluestone 1lb. in 8 gallons of water, or use winter strength Bordeaux. Vines must be attended to for black spot or scab; remove loose bark, and burn it and swab with a solution of 9 gallons of water with 1 gallon of commercial sulphuric acid; care must be taken when adding the acid to the water as it becomes very hot. A good swab may be made of wattle stick and a bit of woolly sheepskin.

Have your land ready for planting citrus trees and have them ordered in good time; when ordering insist that the trees be fumigated before being sent on. Have all spraying plant in thorough going order for spring work.

ADVISORY BOARD OF AGRICULTURE.

The monthly meeting of the Advisory Board was held on Wednesday, July 11th, there being present the Minister of Agriculture (Hon. G. F. Jenkins, M.P., President), Captain S. A. White (Vice-Chairman), Mr. W. J. Colebatch, B.Sc., M.R.C.V.S. (Principal Roseworthy Agricultural College), Professor Arthur J Perkins (Director of Agriculture), Messrs. C. J. Tuckwell, A. W. Sandford, Colonel Rowell, F. Coleman, H. Wicks, and the Secretary of the Advisory Board (Mr. H. J. Finnis).

Veterinary Surgeons for Country Districts.—The recent Conference of River Murray Branches carried the following resolution—"That this Conference affirms the desirability of stationing veterinary surgeons in the country districts." The matter was forwarded to the Minister of Agriculture, who stated that he could not agree to the resolution.

Travelling Instructors for River Murray Districts.—The Conference of River Murray Branches of the Agricultural Bureau resolved—"That the Government be asked to appoint a travelling citriculturist and viticulturist for the Murray districts, and that the Government be asked to appoint an instructor to soldier settlers." The Board decided to forward the resolution to the Minister with a recommendation that an instructor, competent to advise on all branches of horticulture under irrigation, should be appointed.

Parasite of Woolly Aphis.—A communication was received from the Cherry Gardens Branch requesting information concerning the woolly aphis parasite, *Aphelinus mali*, and, if practicable, asking the Department to secure a number of these parasites for distribution among woolly aphis-infested orchards. On the motion of Mr. H. Wicks, seconded by Captain S. A. White, it was decided to ask the Horticultural Instructor (Mr. George Quinn) to report on the matter.

Registration of Bulls.—The Blyth Branch resolved—"That this meeting of the Agricultural Bureau is in favor of the raising of the registration fee to £1 1s. on all but pedigree bulls, which should be exempt, and that the tax on other than pure-bred cattle be raised from year to year." The Secretary was instructed to suggest to the Branch that the matter might be brought before the Annual Congress.

The Ex-Chief Inspector of Stock.—The retirement from the Government Service of Mr. T. H. Williams (Chief Inspector of Stock) was referred to by the Chairman and other members. Messrs. C. J. Tuckwell, F. Coleman, H. Wicks, Colonel Rowell, and Captain White eulogised the service Mr. Williams had rendered to the State, and referred to the assistance he had been to the Advisory Board. It was decided to suggest that Mr. Williams should be appointed a life member of the Board in recognition of his services.

New Branches.—Approval was given for the formation of Branches of the Agricultural Bureau at Wepowie and Kalangadoo (Women's),

with the following foundation members:—Wepowie—Messrs. W. J. Smith, C. H. Kanuerhouse, W. G. Gregenke, J. F. Burns, G. D. McLellan, L. R. Jasper, J. R. Crocker, Th. F. Orrock, J. P. McMartin.

Kalangadoo (Women's).—Mesdames M. McDonald, G. L. Dean, P. Lancaster, D. W. Tucker, G. Bennett, R. G. Messenger, C. Campbell, M. Evans, and C. Bailey, Misses E. Hemmings, G. Hewitt, A. Tucker, M. Lancaster, M. Bennett, and M. McCorquindale.

Branch to be Closed.—It was decided to close the Leighton Branch.

New Members.—The following names were added to the rolls of existing Branches:—Currency Creek—C. J. Coles, H. K. Scott; Coonalpyn—R. S. Ekers; Kalangadoo—B. Altschwager, C. Bailey, L. R. Davies, D. Ellison, W. Boyce, T. Ricketts; Winkie—G. W. Burden, H. H. Andrews, C. Thompson; Saddleworth—J. Kirkbright, Geo. Winkler, J. L. Hortin; Eurelia—J. R. Hall; Tantanoola—R. Campbell; Allandale East—E. Smith, Leo. E. Carlin, G. E. Wallace, F. J. Wallace; Farrell's Flat—J. Pryzibilla, A. Pryzibilla, C. Humphris, J. White, J. Kean, W. Cooper, C. Evans, C. Klein, G. Klem; Port Elliot—E. A. Tusmore; Murray Bridge—J. A. Kutzer; Wilkawatt—H. J. Billing, W. J. Street; Rockwood—H. T. Stacey, A. H. Wilkins; Marama—J. S. Churches, jun.; Morphett Vale—E. C. Christie, F. Grohs, — Taylor, D. Anderson; Parilla Well—J. Burford, F. A. Hill, N. K. Inglis; Pata—W. C. Priest, H. A. Luce; Roberts and Verran—A. J. Crooks, D. Jonas, G. Smith; Talia—E. Taylor, C. Wheaton, G. North; Block E—F. H. Colby; Hookina—F. L. Lindblom; Carrow—J. Gibbons, W. G. Cowley, A. Freeman, S. J. Elliott, C. Bates, M. Bawden, L. Freeman, J. H. Harrowfield, C. J. Seeborn; Yeelanua—R. Roediger; Goode—E. M. Morecombe, L. Dacre, W. Dacre; Blackheath—B. Strauss; Balhannah—G. R. Cowell; Shoal Bay—Chas. Hall; Redhill—C. R. Coleman; Moonta—R. Retallick, C. Cook; Pinnaroo—A. Bennett.

BUDDING CITRUS.

The simplest way to change common orange trees to navels is to cut them back to the main limbs, leaving, say, 9in. of such limb above the main stem, and work into the young sprouts quite low down where they emerge from older wood. If the old trees were cut back in August or September, advises the Horticultural Instructor (Mr. Geo. Quinn), whose opinion was sought by a grower at Teal Flat, the young sprouts should be large enough to bud during the following summer. The buds are left dormant until the following spring by not removing the portion of the young sprout above them. Such pollarded citrus stocks should be heavily coated with whitewash before the summer arrives, and if a pad of grass or straw be tied around the main stems as well, the danger of sun scalding the bark will be more fully averted. Buds should be taken from navels known to bear good crops of smooth hard fruits not large in size. We advise removing the twisted wires now encircling the trunks.

WHEN another car would have outlived its usefulness, the HUPMOBILE goes serenely on, giving the same faithful, steady service that characterised the first days of its ownership.

We know this statement to be true, and HUPMOBILE owners by the hundreds and the thousands know it to be true.

But at intervals its truth is borne in upon us anew by direct evidence from some HUPMOBILE owner, so forceful that it is worthy of public record.

Such an instance is a letter from Dr. J. G. Cutliffe, received by the HUP. Corporation.—“It has been on the job 10 years for me, and was second-hand when I got it. It is the wonder of this town.”

Let us supply you particulars of this remarkable car.

PHOENIX MOTOR COMPANY, LTD.,
PIRIE STREET, ADELAIDE.

THE AGRICULTURAL OUTLOOK.

REPORTS FOR THE MONTH OF JULY.

The following reports on the general agricultural condition and outlook of the areas represented by the Government Experimental Farms mentioned below have been prepared by the respective managers:—

Booborowie.—Weather—336 points of rain was registered up to the 28th, this fell on 16 days. Crops—The early sown wheat crops are now making very good growth, and with a reasonably wet spring some good crops should be harvested. Natural feed is growing well. Stock—Livestock, in most cases, are in good condition, excepting those roaming the roads. Pests—Rabbits are becoming very scarce in this district except in one or two isolated cases. Miscellaneous—Farmers are now busily engaged in seeding operations.

Eyre Peninsula.—Weather—Splendid rains, but weather rather cold. Crops—All looking well and prospects of the season are exceptionally good up to date. Oats are showing up exceptionally well. Natural feed making good growth. Stock—All in splendid condition and free from disease. Miscellaneous—Pruning and fallowing are completed.

Turretfield.—Weather—With the exception of two days, this month has consisted of rainy and damp days, rain having been registered on 20 days, and, following a wet May and June, the seeding season has been the worst ever experienced. Crops are very poor; a large area of fallow will not be sown; that which has been sown has in many instances perished before it germinated. Natural feed is very backward, the continuous rain checking all growth. Stock are feeling the effect of the wet weather and will not pick up until fine weather causes the feed to come on. Miscellaneous—Very little fallowing has been done, as it is only on high land that teams can work, and then only a day now and again.

Kybybolite.—Weather has continued wet and cold, until the last week, when we had some nice warm days. Three hundred and seventy-eight points were registered during the month on 22 days. Rain has been recorded on 65 days since the 5th of May, and consequently the three months have been the wettest on our records, except for the same months during 1906. We received 4in. more than the average for July, and for the year we have had 2in. in excess of average. Crops are very backward and made very little growth during the month, except on one or two fields, the soils of which contain a large amount of organic matter. Soil conditions are too wet for preparing for pea and barley crops. Natural feed is short, and has made very little growth. It is most noticeable that plots and fields that have received fair applications of phosphate have produced better feed during the wet period. Stock are in a very fair condition, but have needed a large amount of attention and protection from cold and wet. Milk cows have not yielded as well as usual on account of absence of good green feed.

DAIRY AND FARM PRODUCE MARKETS.

A. W. Sandford & Co., Limited, reported on August 1st, 1923:—

BUTTER.—During the month supplies of dairy products have recorded a substantial increase, and as all consignments came along in excellent condition, buyers, both locally and interstate, were encouraged to operate freely for all grades submitted. Values remain practically stationary, only a fluctuation of $\frac{1}{2}$ d. per lb. occurring with top grades. Choicest factory and creamery fresh butter in bulk, 1s. 9 $\frac{1}{2}$ d.; second grades, 1s. 5d.; best separators and dairies, 1s. 7d. to 1s. 8 $\frac{1}{2}$ d.; fair quality, 1s. 5d. to 1s. 6 $\frac{1}{2}$ d.; store and collectors', 1s. 2d. to 1s. 5d.

EGGS.—The boisterous weather which prevailed for the majority of the month was responsible for a big decrease in supplies coming to our market, and a reaction in values took place, the market advancing to the extent of 2d. per dozen. Values at the close of the month were fresh hen 1s. 4d., duck 1s. 5d. per dozen.

CHEESE.—Although quantities at the beginning of the month were equal to this State's requirements, rates fluctuated owing to supplies being short in the Eastern States. Fair sized consignments of newly made cheese are coming to hand which are being absorbed readily by local buyers, whilst matured are scarce, the range at present being from 1s. 1 $\frac{1}{2}$ d. to 1s. 2 $\frac{1}{2}$ d. for large to loaf.

HONEY.—Market has been well supplied with all grades, which have been selling fairly freely to interstate buyers, prices being, prime clear extracted liquid samples, 4d. to 4 $\frac{1}{2}$ d.; best candied lots, 3 $\frac{1}{2}$ d.; whilst lower grades have been somewhat neglected at down to 2d. per lb. Beeswax is readily saleable at 1s. 4d. for the best samples.

ALMONDS.—The demand has remained good, and the consignments arriving have been equal to trade requirements, with only slight fluctuations occurring in values. Brandis, 9d. to 9 $\frac{1}{2}$ d.; mixed softshells, 8d. to 8 $\frac{1}{2}$ d.; hardshells, 4 $\frac{1}{2}$ d. to 4 $\frac{3}{4}$ d.; kernels, 1s. 3 $\frac{1}{2}$ d. to 1s. 4d.; walnuts, 11d.

BACON.—Although one or two of the Eastern States have experienced difficulty in supplying this article, the curers in this State have been able to purchase their required number of pigs, and have kept the market stocked at unchanged values. Best factory-cured sides, 13 $\frac{1}{2}$ d.; hams, 1s. 3 $\frac{1}{2}$ d. to 1s. 4d.; middles, 1s. 4d.; rolls, 1s. 1 $\frac{1}{2}$ d.; lard, Hutton's in packets, 11d.; in bulk, 10d.

LIVE POULTRY.—During the course of the month consignors at various times experienced difficulty in forwarding their surplus birds owing to the rough weather, and supplies, although fairly large, were by no means equal to our buyers requirements. Several poulterers have exhausted their stocks of cold stored birds, and are buying freely, so that excellent sales have been secured for all forwardings. We expect that these good prices will be obtainable for some time to come, and we recommend farmers to consign their surplus poultry. Crates obtainable on application:—Prime roosters, 5s. to 6s. 7d. each; nice condition cockerels, 3s. 6d. to 4s. 9d. each; poor condition cockerels, 2s. 5d. to 2s. 10d. each; plump hens, 4s. to 5s. 6d. each; medium hens, 2s. 9d. to 3s. 9d. each; some pens of weedy sorts lower; geese, 6s. 6d. to 8s.; ducks, good condition, 4s. 6d. to 6s. 3d.; ducks, fair condition, 3s. to 4s. each; turkeys, good to prime condition, 1s. to 1s. 6d. per lb. live weight; turkeys, fair condition, 9 $\frac{1}{2}$ d. to 11 $\frac{1}{2}$ d. per lb. live weight; turkeys, fattening sorts, lower; pigeons, 11d. each.

POTATOES.—During the latter part of the month, values have advanced rather rapidly, the wet weather interfering with deliveries from Victoria. At the close of the month Victorian potatoes sold at from 17s. to 18s. per cwt. on trucks, Mile End; parcels a shade lower.

ONIONS.—Rates have advanced slightly. Best dry Victorians selling at 8s. per cwt. on trucks.

RAINFALL TABLE.

The following figures, from data supplied by the Commonwealth Meteorological Department, show the rainfall of the subjoined stations for the month of and to the end of July, 1923, also the average precipitation to the end of July, and the average annual rainfall.

Station.	For July, 1923.	To end July, 1923.	Av'ge. to end July.	Av'ge. Annual Rainfall	Station.	For July, 1923.	To end July, 1923.	Av'ge. to end July.	Av'ge. Annual Rainfall
FAR NORTH AND UPPER NORTH.					LOWER NORTH—continued.				
Oodnadatta	—	1.92	3.41	4.93	Spalding	3.41	8.71	10.78	20.4
Marree	0.78	3.50	3.63	6.14	Gulnare	3.67	11.16	10.46	19.3
Farina	0.36	5.04	4.17	6.73	Yacka	3.24	8.94	8.66	15.4
Copley	0.71	5.23	5.18	8.50	Koolunga	3.02	8.79	9.01	15.8
Beltana	0.83	5.43	5.44	9.65	Snowtown	2.52	9.09	9.22	16.6
Blinman	2.93	7.01	7.69	12.61	Brinkworth	3.08	9.71	8.98	16.3
Tarcoola	0.18	2.00	4.47	7.91	Blyth	3.45	10.48	9.62	16.9
Hookina	1.71	6.57	8.00	13.90	Clare	5.82	17.12	14.17	24.6
Hawker	2.76	8.64	7.56	12.93	Mintaro	5.80	18.06	12.96	23.4
Wilson	2.32	6.91	7.46	12.56	Watervale	6.29	17.46	15.74	27.4
Gordon	1.72	4.61	6.77	11.60	Auburn	5.17	14.48	13.96	24.3
Quorn	3.84	8.31	8.13	14.24	Hoyleton	3.80	9.50	10.12	17.8
Port Augusta	1.37	4.50	5.69	9.68	Balaklava	2.86	8.43	9.16	15.9
Port Augusta West	1.37	4.31	5.52	9.74	Port Wakefield	1.93	7.91	8.08	13.2
Bruce	1.53	4.73	6.09	10.76	Terowie	2.03	6.65	7.45	13.7
Hammond	1.76	7.63	6.75	11.90	Yarcowie	1.73	6.17	7.91	14.1
Wilmingon	5.00	11.66	10.59	18.44	Hallett	3.36	9.63	8.90	16.3
Willowie	2.38	7.36	7.17	12.44	Mount Bryan	3.96	11.98	9.02	16.7
Melrose	6.32	17.35	12.86	23.88	Kooronga	3.75	10.94	10.27	18.0
Booleroo Centre	3.42	11.16	8.87	15.67	Farrell's Flat	3.89	11.84	10.67	18.9
Port Germein	2.72	7.37	7.43	12.93	WEST OF MURRAY RANGE.				
Wirrabara	4.86	12.79	11.31	19.85	Manoora	4.40	13.09	10.20	18.7
Appila	2.47	9.33	8.39	15.01	Saddleworth	3.86	13.58	11.26	19.7
Cradock	1.78	6.26	6.68	11.50	Marrabel	4.86	15.81	11.02	19.4
Carrieton	2.51	8.48	7.28	12.91	Riverton	4.95	15.81	11.81	20.7
Johnburg	2.08	5.61	5.96	10.85	Tarlee	3.87	15.91	10.03	17.8
Eurelia	2.88	7.96	7.63	13.56	Stockport	3.45	15.45	9.20	16.8
Orroroo	2.36	7.05	7.99	13.75	Hamley Bridge	3.88	14.70	9.40	16.8
Nackara	1.58	4.85	7.20	11.85	Kapunda	3.83	15.03	11.33	19.8
Black Rock	2.76	9.34	7.27	12.73	Freeling	3.37	15.39	10.10	17.9
Ucolta	1.56	4.80	6.92	12.10	Greenock	4.24	18.06	11.01	21.4
Peterborough	2.53	8.55	7.53	13.53	Truro	4.07	16.51	11.31	20.8
Yongala	1.33	8.44	7.93	14.51	Stockwell	4.02	17.38	11.45	20.4
LOWER NORTH-EAST.					Nuriootpa	3.74	16.00	11.88	20.9
Yunta	0.94	3.22	5.11	8.93	Angaston	4.36	18.93	12.73	22.8
Waukaringa	0.72	4.04	5.17	8.61	Tanunda	5.02	18.61	12.79	22.8
Mannahill	0.86	3.18	5.08	8.79	Lyndoch	5.79	23.14	13.04	22.8
Cockburn	0.78	3.84	4.93	8.42	Williamstown	6.11	23.57	16.18	27.7
Broken Hill, N.S.W.	1.24	6.11	5.86	10.08	ADELAIDE PLAINS.				
LOWER NORTH.					Mallala	3.76	14.00	9.24	16.4
Port Pirie	2.12	6.80	7.95	13.55	Roseworthy	4.36	14.93	9.88	17.7
Port Broughton	2.95	8.26	8.47	14.27	Gawler	3.42	14.90	11.19	19.4
Bute	3.35	11.07	9.26	15.80	Two Wells	3.39	12.98	9.49	15.8
Laura	3.74	12.24	10.22	18.25	Virginia	3.28	14.20	10.18	17.7
Caltonie	4.10	11.25	9.33	17.19	Smithfield	4.02	15.53	9.93	17.7
Jamestown	3.85	11.95	9.71	17.86	Salisbury	4.58	17.57	8.72	18.8
Bundaleer W. Wks.	3.52	11.43	9.62	18.05	North Adelaide	5.45	18.19	13.19	22.8
Gladstone	4.00	13.61	8.95	16.22	Adelaide	5.01	16.29	12.70	20.6
Crystal Brook	3.54	9.17	9.05	15.93	Glenelg	3.73	12.32	11.11	18.7
Georgetown	4.07	13.66	10.43	18.50	Brighton	4.44	14.25	12.48	21.3
Narriady	2.05	9.93	10.35	16.43	Mitcham	7.19	20.56	15.15	24.0
Redhill	2.84	9.78	10.87	16.93	Glen Osmond	7.15	22.06	15.60	25.7
					Magill	7.73	22.72	15.22	25.7

AGRICULTURAL BUREAU REPORTS.

INDEX TO CURRENT ISSUE AND DATES OF MEETINGS.

Branch.	Report on Page	Dates of Meetings		Branch.	Report on Page	Dates of Meetings	
		Aug.	Sept.			Aug.	Sept.
Alawoona	*	—	—	Georgetown	*	25	22
Aldinga	†	22	26	Geranium	A.M.	26	29
Allandale East	†	24	21	Gladstone	A.M.	24	21
Amyton	*	27	24	Glencoe	*	—	—
Angaston	*	—	—	Glossop	*	22	29
Appila-Yarrowie	*	—	—	Goode	*	29	26
Arthurlton	†	—	—	Green Patch	73, 78	20	24
Ashbourne	†	—	—	Gumeracha	92	27	24
Balakiava	*	11	8	Halidon	*	22	26
Balhannah	A.M.	24	21	Hartley	*	22	—
Barmera	*	21	26	Hawker	*	28	25
Beetaloo Valley	58	22	—	Hilltown	*	—	—
Belalie North	*	25	22	Hookina	A.M.	23	20
Berri	A.M.	29	26	Inman Valley	*	—	—
Big Swamp	*	—	—	Ironbank	†	25	22
Blackheath	90	24	23	Kadina	*	—	—
Black Springs	†	—	—	Kalangadoo (Women's)	*	—	—
Blackwood	†	20	17	Kalangadoo	A.M.	11	8
Block E	†	—	—	Kangarilla	A.M.	—	—
Blyth	*	4	1	Kanmantoo	*	25	22
Boolaroo Centre	*	24	21	Keith	*	—	—
Borrika	*	—	—	Ki Ki	79	—	—
Brentwood	68	23	20	Kilkerran	71	23	20
Brinkley	*	25	22	Kimba	*	—	—
Bundaleer Springs	*	27	24	Kingscote	*	—	—
Bute	*	21	26	Kingston-on-Murray	*	—	—
Butler	*	—	—	Kongorong	†	23	20
Calca	*	—	—	Koomibba	*	24	21
Cadell	A.M.	—	—	Koppio	*	20	24
Canowie Belt	*	—	—	Kybybolite	†	23	20
Carrow	A.M.	23	20	Lake Wangary	*	25	22
Cherry Gardens	*	21	25	Lameroo	79	24	28
Clanfield	*	—	—	Laura	A.M.	25	22
Clare	66	—	—	Lenswood and Forest Range	†	—	—
Clarendon	*	20	24	Lipson	78	—	—
Claypan Bore	*	29	26	Lone Gum and Monash	A.M.	22	19
Cleve	*	22	19	Lone Pine	66	—	—
Collie	72	—	—	Longwood	*	—	—
Colton	73	31	28	Loxton	81	—	—
Coomandook	90	22	19	Lucindale	*	—	—
Coomalpyne	A.M.	24	28	Lyndoch	66	24	20
Coorabie	*	—	—	McLachlan	A.M.	—	—
Craddock	*	—	—	MacGillivray	*	21	25
Crystal Brook	61	24	21	Maitland	*	23	20
Cungena	*	—	—	Mallala	*	20	17
Currency Creek	*	—	—	Maltes	73	24	21
Cygnet River	90	23	20	Mangalo	*	—	—
Darke's Peak	*	—	—	Maramba	A.M.	27	24
Denial Bay	*	—	—	Meadows	92	22	19
Edillilie	*	25	29	Menangle	*	—	—
Elbow Hill	*	28	25	Millang	*	11	8
Eurelia	58	17	14	Millicent	A.M.	4	1
Farrell's Flat	60	24	21	Mittalie	74	25	22
Franks	*	25	29	Mindarie	*	6	3
Sawler River	62	27	24				

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		Aug.	Sept.			Aug.	Sept.
Minlaton	*	24	21	Rockwood	*	20	24
Minnipa	*	22	19	Rosedale	64	—	—
Monarto South	84	—	—	Rosy Pine	*	—	—
Moonta	†	24	21	Saddleworth	*	24	—
Moorak	96	23	20	S a d d l e w o r t h	66	14	—
Moorlands	*	—	—	(Women's)			
Moorook	84	24	21	Salisbury	66	7	4
Morchard	A.M.	25	22	Salt Creek	*	—	—
Morphett Vale	*	23	27	Sandalwood	*	—	—
Mount Barker	†	22	19	Shoal Bay	*	21	26
Mount Bryan	†	—	—	Smoky Bay	74	—	—
Mount Bryan East ..	*	—	—	Spalding	*	—	—
Mount Compass	*	—	—	Stockport	68	—	—
Mount Gambier	A.M.	11	8	Streaky Bay	*	—	—
Mount Hope	78	26	22	Strathalbyn	*	28	26
Mount Pleasant	*	—	—	Talia	78	13	10
Mount Remarkable ..	*	—	—	Tantanoola	*	26	22
Mount Schank	*	—	—	Taplan	*	21	26
Mundalla	*	22	19	Tarcowie	*	21	25
Murray Bridge	84	21	29	Tarlee	68	—	—
Myponga	*	22	19	Tatara	*	18	16
Myponga	*	—	—	Two Wells	*	—	—
Nantawarra	*	23	20	Uraidla & Summertown	*	8	3
Naracoorte	100	11	8	Veitch	*	—	—
Narriady	*	26	22	Virginia	*	—	—
Narrung	*	26	22	Waikerie	*	—	—
Neeta	*	—	—	Wall	*	—	—
Nelababy	†	25	22	Wanbi	*	—	—
Netherton	A.M.	24	21	Warcovie	*	—	—
North Booborowie ..	60	—	—	Watervale	*	—	—
North Bundaleer	*	—	—	Weavers	72	20	24
Northfield	*	—	—	Wepowie	†	—	—
Nunkeri and Yurgo ..	*	5	2	Whyte-Yarcowie	†	—	—
O'Loughlin	*	22	19	Wilkawatt	†	26	22
Orroroo	*	—	—	Williamstown	†	1	5
Owen	64	24	21	(Women's)			
Parilla	85, 86	24	21	Williamstown	68	24	21
Parilla Well	88	27	24	Willowie	68	22	19
Parrakie	*	—	—	Wilmington	*	22	19
Paruna	*	—	—	Windsor	*	21	26
Paskeville	*	24	21	Winkie	*	20	24
Pata	88	23	—	Wirrabara	61	—	—
Penola	†	4	1	Wirrega	*	—	—
Petina	*	26	29	Wirrilla	†	25	22
Pinnaroo	†	24	28	Wirrulla	76	—	—
Pompoota	*	8	12	Wolowa	*	—	—
Port Broughton	*	24	21	Wudinna	*	26	22
Port Elliot	*	18	16	Wynarka	*	—	—
Port Germein	*	—	1, 29	Yabmana	*	—	—
Fygery	*	25	22	Yacka	*	21	25
Ramco	*	20	24	Yadnarie	76	21	26
Rapid Bay	93	4	1	Yallunda	*	—	—
Redhill	A.M.	23	26	Yaninee	*	—	—
Rendelabam	*	22	19	Yeelanna	78	26	22
Renmark	†	23	20	Yongala Vale	*	—	—
Riverton	*	—	—	Yorketown	*	—	—
Riverton (Women's) ..	*	—	—	Youngusband	89	23	27
Roberts and Verran ..	74	23	20				

* No report received during the month of July.

† Held over until next month.

‡ Formal.

A.M. Annual meeting.

THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

Every producer should be a member of the Agricultural Bureau. A postcard to the Department of Agriculture will bring information as to the name and address of the secretary of the nearest Branch.

If the nearest Branch is too far from the reader's home, the opportunity occurs to form a new one. Write to the department for fuller particulars concerning the work of this institution.

REPORTS OF BUREAU MEETINGS.

UPPER-NORTH DISTRICT.

(PETERBOROUGH AND NORTHWARD.)

WILLOWIE (Average annual rainfall, 11.90in.).

May 24th.—Present: eight members.

COLT BREAKING.—Mr. F. Starkey contributed a paper on this subject. All farmers, he said, should understand the method of handling a colt. Many horses could be found that were mouthed on one side only through people not exercising care when breaking them in. He favored a strong yard and crushpen for catching young horses. When in the crushpen the colt should be rubbed down until he lost all fear. The bridle could then be put on, the bit inserted in its mouth, the mousing gear attached, and the colt left alone for some little time. The colt could then be caught, a rope tied on each side, and an endeavor made to drive him about. In no case should the horse be run around in a circle with one rein, or he would become mouthed on one side only. If the colt became sulky when caught, and lied down, the best plan would be to use the whip, but if that did not succeed, a pair of quiet horses should be procured and an endeavor made to try and coax it along. If the horse still remained stubborn, it should be turned out for a day or two, and after that it would generally lose its sulkiness if touched with the whip; but the whip should not be used any more than was absolutely necessary or the horse would become frightened. He favored hitching the horse to a log for drawing about before placing it in a team. When commencing hard work, care should be taken to ensure that the horse did not get sore shoulders. If it was free from that complaint whilst being broken in, it would generally be found that the shoulders would not become sore afterwards. He advised all colt-breakers to study the animal they were handling, and ascertain which treatment was answered to best. He favored placing a branbag which had previously been dipped in cold water and rung out, under the collar to prevent scalding. A good discussion followed the reading of the paper.

At a meeting held on June 21st Messrs. L. G. McCallum and F. Bull gave a demonstration of sheep dressing, which was watched with interest by those present.

EURELIA, July 12th.—Mr. W. T. Brown read articles dealing with the various breeds of sheep. The speaker also dealt with the breeds of sheep most suitable for lamb raising and the best sheep for wool. A lengthy and interesting discussion followed.

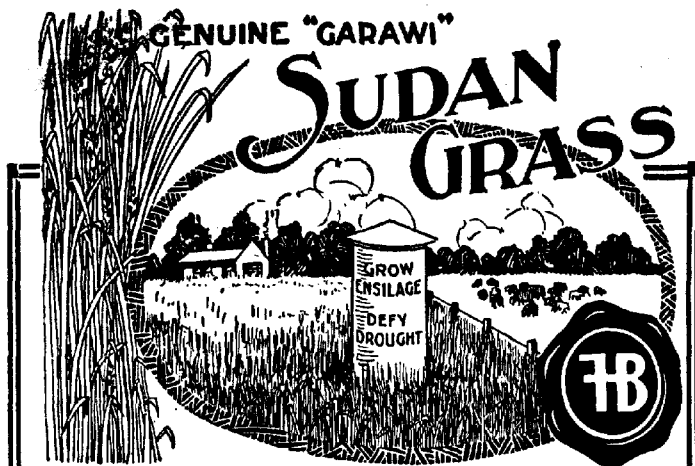
MIDDLE-NORTH DISTRICT.

(PETERBOROUGH TO FARRELL'S FLAT.)

BEETALOO VALLEY (Average annual rainfall, 23.50in.).

June 28th.—Present: 14 members and two visitors.

MAKESHIFTS ON THE FARM.—Mr. A. H. Clogg, who read a paper under this title, said the practice of forming a makeshift to take the place of some permanent repair often led to considerable loss of time and money, and injury to stock. The



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most common makeshift noticed on many farms was that of drawing a wire or two across an opening in a fence to take the place of a gate. Very often the farmer did not take the trouble to place a permanent gate in the fence until the stock had been injured, the women folk had torn their dresses, and the men their hands. Wire could frequently be used to good purpose for mending broken chains or to take the place of a lost bolt in an implement, but too frequently such makeshifts were used to excess. Sheds were sometimes erected with straw roofs and brush walls, and although they served the purpose of housing the stock and implements for some time, there was always the danger of their catching fire, whereas an iron shed could be built at a small cost and last for a considerable time. One very serviceable makeshift that the speaker referred to was the using of old reapers for fowlhouses and pigsties.

FARRELL'S FLAT.

June 25th.—Present: 19 members.

Mr. E. B. I'Anson read a paper, "Lamb Tailing," and an interesting discussion followed.

FEEDING TESTS WITH PIGS.—The Hon. Secretary (Mr. J. D. Thompson) gave the following results of a test that he had carried out in feeding barley to pigs:—Pig at five months old weighed 83lbs., and after being fed on 6lbs. of whole barley for 26 days weighed 124lbs. The ration was then increased to 9lbs. of barley per day for 56 days, when the pig turned the scale at 255lbs., and when sold in the market realised £5 10s.; 660lbs. of barley was consumed by the pig, the market price of the grain being 2s. 9d. per bushel.

NORTH BOOBOROWIE (Average annual rainfall, 16.35in.).

June 26th.—Present: six members.

POULTRY ON THE FARM.—The following paper was read by Mr. Gaskell:—"To increase the productiveness of the farm should be the aim of every man on the land. Nearly every farmer is interested in the raising of stock of some description, and stock products constitute a very large proportion of our agricultural production. High-priced land, high cost of living, high rates of interest, and expensive labor make it essential that everything possible should be done to increase the yield from every acre, to show a profit on the work of the farm. Well-bred stock are no more expensive, so far as the feeding is concerned, than inferior animals, but they bring in increased revenue. Well-bred sheep cut more wool and make better mutton than those of mixed breeding. A herd of pure-bred cattle will bring in better returns than crossbreds, whether for beef or dairy production. Pure-bred fowls of a good laying strain will produce more eggs than crossbreds, whilst the old hens and surplus cockerels will be more easily disposed of and will realise better prices. It is a very expensive item for a farmer to establish a herd of pure-bred cattle or sheep, but that cannot be said of poultry. With poultry, a few pounds and a few months' work will produce a fine flock of fowls capable of paying for the initial outlay many times over. The Breeding Pen.—A small house with a small yard attached is needed to accommodate a pen of four fowls—three hens and a cockerel. The house should be warm and the yard entirely netted against foxes. The fowls should be provided with shell grit, scratching material, green feed, and not too much food. These fowls should be bought from a well-known reliable breeder. One of the best breeds for the farm would be a good laying strain of Black Orpingtons. They are only second to White Leghorns for laying, and would supply better poultry for the table and bring better prices for the cockerels than the lighter breed. It would be necessary to pay three to four guineas for these fowls, but it would be money well spent. The hens should be in their second year and the cockerel about a year old. These would be best bought in May or June and put in the pen straight away. After the breeding season is over they could be let out, so long as they are marked with a leg ring. Hatching.—For the best results, hatching should take place from June to September if possible, but for a farmer who relies on broody hens, a little later would

be all right. All outside roosters should be disposed of to prevent crossbreeding. As the outside hens become broody they should be supplied with eggs from the pen. If possible, other hens should be kept away, and in any cases the pen eggs should be marked. If a farmer has a little time and money to spare, he could, with advantage to himself and his poultry, adopt some of the following practices:—The outside fowls should be provided with a good roosting-house, open to the east, with plenty of swinging perches of a uniform height. Another house could be provided for scratching. It is wonderful what a difference a warm dry scratching-house makes to the fowls during cold, wet weather. The exercise and warmth encourages them to lay better and keeps them healthy. In a country where there are foxes it would pay to have both these houses enclosed in a small netting yard. The fowls could be fed there at night and then shut up. This would not only protect them from the foxes, but also keep them from roosting in the stable and implement-shed. A supply of shell grit for the outside fowls would cost little and be very little trouble. Fresh water should be supplied. The best and easiest method is that of a dripping tap in a shady place. Kerosene-tin nest boxes are easy to make and do not harbor vermin. Broody hens can be set in them in a place where they can come off for food and water without being disturbed by other fowls. Chickens could be hatched in an incubator and reared in a brooder. This would mean early chicks, which would lay when eggs are scarce. However, the average farmer would hardly care to worry about an incubator nor about some of the other things mentioned above. Much, however, might be done, with very little trouble and expense, to improve the poultry on the farm. Even if a farmer did not care to buy a breeding-pen, he might, by buying a good cockerel every year or so, very greatly improve the laying qualities of his poultry. This same breeding-pen could be used the following year. The next year it would be advisable to pick out, say, six of the best two-year-old hens and mate them with a good cockerel bought from the breeder that supplied the original pen. Thus the cost of breeding would be, after the first year, about one guinea per year."

WIREBARA (Average annual rainfall, 18.91in.).

June 2nd.—Present: 15 members.

PAINTING.—"Wagons, buggies, drays, and any other vehicle, especially those of wooden construction, require a coat of paint once a year, or every two years at the outside," said Mr. H. H. Jericho in a paper under the heading "Painting." Holding such work over for a long period was disastrous to the article or vehicle that required a coat of paint. The wood became weatherbeaten and commenced to crack, water soaked into the cracks, and in a very short time the wood decayed. A coat of paint on weatherbeaten wood did not make a good job, and, in addition, such wood required more paint than that having a smooth surface. Before the paint was applied, the wood should be thoroughly cleaned, all the old paint scraped off, and if necessary a blowlamp should be used to clean the wood. If colored paints were to be used the speaker thought it was the best plan to obtain white paint and then add the desired color of ochre. The paint should be thoroughly mixed and strained before being used. The first coat should not be thick; turps and oil should be added to the paint. It should be allowed to dry thoroughly before the second one was applied. The surface of the wood should be brushed and the paint would dry out with a fine glossy finish. All fine cracks should be noticed, and care taken to see that the paint was well brushed into them. If the cracks were large they should be filled in with putty. The woodwork of the house, scotia-boards, window and door frames, and the verandah required an occasional coat of paint. Many people still adhered to the practice of whitewashing the walls of the rooms, others favored paper on the walls, while some favored calomine. The writer held the opinion that once a smooth surface was obtained on the walls they should be covered with a coat of paint. Walls that had been painted could easily be cleaned with a damp cloth should they become dirty.

CRYSTAL BROOK, July 5th.—The Director of Agriculture (Professor Arthur J. Perkins) attended the meeting and delivered an address in which he dealt with several agricultural problems relating to local conditions.

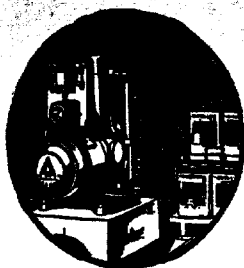
LOWER-NORTH DISTRICT.

(ADELAIDE TO FARRELL'S FLAT.)

GAWLER RIVER (Average annual rainfall, 17in. to 18in.).

June 26th.—Present: 10 members.

MIXED FARMING ON SMALL HOLDINGS.—The following paper was contributed by Mr. W. Chamberlain:—"On small holdings it is necessary to produce many different lines in order to make the farm a paying proposition. Much of the success, however, depends on the quality and management of the soil. It is necessary to have the land subdivided into small paddocks, so that each paddock may be made to produce some crop each year. Much of the land in our immediate district is highly suitable for intense cultivation, and the time is not very far distant when a large area of it will be cut into even smaller holdings, made to produce greater wealth, and keep a much larger population, which is one of Australia's greatest needs. On small holdings each farmer should endeavor to put the greater portion of his land to some commercial use each year, and this can largely be done by growing a rotation of crops. When land costs £20 or more an acre it is too dear to be producing only one crop in two years. The small farmer should be careful not to overstock his farm. Four good horses can do all the necessary team work of a 100-acre farm if properly fed and cared for. Ten or 12 good cows should be kept, and it pays any farmer to keep a good class of stock. Of course, it is a matter of opinion which is the best breed of cattle to keep, but for the small landholder, I certainly favor Jerseys. They yield milk rich in butter fat, give a fair average milk supply, and are more contented and more easily kept than some of the other breeds. There is a great future for the dairying industry in South Australia, but it badly needs organising. The majority of dairy farms are not paying under the present conditions. There must be great changes in the methods of holding and distribution of dairy produce before the average dairyman can say that he has a paying proposition. Every farmer who keeps cows should put a few acres of summer fodders, such as maize, lucerne, Sudan grass, &c., under crop each year. If he does this, the cows will not require so much chaff and very little bran, and then a good portion of the hay that is grown can be sold. Another important line for the small farmer to consider is that of pig raising. To make a success of the venture a pig-proof paddock of about two acres sown with barley, with a stack of straw in the centre, should be provided. The next consideration should be the selection of good quality sows. Whatever the choice of breed might be, the pigs should be of good quality and true to type. It does not pay to breed from mongrel sows. It is equally important to use a well bred boar. I favor the Berkshire sow and Mid-York boar. Where separated milk is available, pigs are almost a necessity. The time is not very far distant when the pig will prove of great wealth to the State. Present conditions are not very encouraging, for all the producer has to depend on is the limited local demand. When that is over supplied, down comes the price of pigs, and breeders cease raising pigs. Before pig raising can become an established industry, it will be necessary to secure and establish a permanent oversea market. Such prospects appear to be exceedingly good. Great Britain is a heavy importer of pig products, and at present draws the greater part of her supplies from the United States and Canada. Why cannot we share in this demand? In America the staple product for fattening pigs is maize, whereas in Australia barley can be used to a very large degree. I have in mind another important industry to our State which, at the present time, is much neglected, and that is potato culture. This line can be increased to a great extent even in our district. We have, between Gawler and Angle Vale, some of the finest land in South Australia for potato growing. There are hundreds of acres of rich river flats most suitable for the potato, more especially the early varieties. Perhaps some of us do not realise that we, as a State, are importing 75 per cent. of the local requirements. Why should we do this when we have the soil that is suitable, and a railway almost at our door, and a profitable market at hand."



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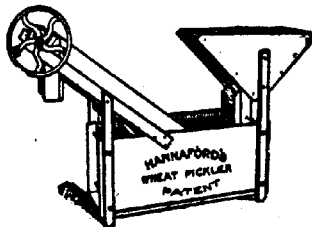
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OWEN.

June 22nd.—Present: six members.

TYPE OF HORSE MOST SUITABLE FOR THE FARM.—Mr. J. B. McPharlin contributed a paper on this subject. No doubt the tractor had the advantage in the way of longer hours and faster working, he said, but he preferred to sit behind a good team of horses than behind a greasy and noisy engine. He did not favor the large draught horse, because that type of animal was slower, consumed more feed to keep up his condition, was inclined to be clumsy, especially when working in boggy land, and often required more care in regard to his health. For carting on the road where the animal could get a solid footing, and where a strong pull was needed, such as getting out of the paddock, or over a broken road, the large horse might show to advantage, but in the team on the farm where an extra horse was put in the team rather than have heavy going, and where the draught was more even than road work, a brisk walker was the ideal horse. He preferred an animal about three-fourths the weight of a heavy draught horse, with good bone, but fairly clean legs, and a round, well-ribbed barrel. Wide shoulders were also to be preferred to give a good bearing for the collar. If the horse was a little longer in the legs that would be no fault, because that type would walk better than the short-legged animal. The active, tractable horse with an even pace, that would do a good day's work without getting leg weary, and would go through a hard season's work without losing much flesh, was the animal most suited for the farm, and he thought those points could more often be found in the medium than in the heavy draught. If a pair of horses were needed in the trolley to trot into the railway station for a light load, or for other similar jobs about the farm, the medium horse would have the advantage. Color was not a very important point so long as it was a decided color. One could not procure a better color than a bright chestnut with silver mane and tail. A horse of that color in good condition always had a very clean appearance. A bright bay with black points was perhaps the most popular, and a very good color. That type generally had dark hoofs, which, although sometimes rather brittle, were very much better than white hoofs. He preferred a black horse. It was generally hardy, and would also have black hoofs. If the farmer had one or two suitable mares he should rear his own horses, taking care, always, to breed from the best obtainable. A good-shaped, active mare mated to a well-bred Shire or Clydesdale stallion should produce a foal that would make a good type of farm horse. He thought that if the farmer bred and broke in his own horses they would usually suit him much better than a bought animal. The most suitable type of horse for the farm was very much a matter of personal opinion, but his ideal was a well-built, well-bred, active, medium draught. During the discussion which followed, Mr. C. L. Marshman said he preferred the nuggetty, short-legged horses with clean legs. He maintained that they were very healthy, noted for longevity, and were good workers. Mr. A. Freebairn also thought that a nuggetty, medium-sized horse, with clean legs, was the most economical animal, and kept its condition better than most horses. Mr. W. J. Marshman stated that different types of country required different types of horses. Mr. R. S. Harkness preferred a fairly big, powerful horse, with a strong constitution, which was indicated by its general appearance and well-filled middle, a horse that could walk along at a good pace and keep it up even on heavy work. The legs should be fairly clean, because hair was an advantage for show or sale purposes only. A team of large horses would perhaps be steadier, but would be able to stand longer hours than the lighter type of animal. They would also be better fitted for carting on roads, and for dray work on the farm. With the advent of the tractor he thought that type of horse would be in much greater demand.

ROSEDALE.

May 31st.—Present: six members and visitors.

The Manager of the Turretfield Demonstration Farm (Mr. F. E. Waddy) attended the meeting and delivered an address, "The Business of Farming."

CARE AND MANAGEMENT OF HORSES.—A further meeting was held on June 27th, when a paper dealing with the subject, "Care and Management of

Horses," was read by Mr. H. Falting. The first point to be considered in the care of the team was the stable, which should be enclosed with a stone wall, roofed with iron, and provided with plenty of ventilation. He thought it advisable to allot each horse a separate stall in which it should be tied, in order that no time would be lost in chasing the animals around the yard when they had to be harnessed. A piece of rock salt or salt lick should be placed in the manger, because the salt helped to keep the animals in good health. When the horses had been turned out for some time, it was not advisable to work them too hard for the first day or two. Light work for the first few days would give their shoulders a chance to harden and become accustomed to the work. When fitting collars on the horses, it was best to have the collars fit somewhat tightly, rather than too loosely. Large collars chafed the skin and caused sore shoulders. A very handy and useful tool for use in the stable was a small hook made of fencing wire. By making a small cut in the lining on the side of the collar sufficient padding could be removed to prevent a sore from developing on any weak part of the shoulder. Another useful tool was a wooden mallet weighing about 2lbs., with which a lump could be reduced in the lining of the collar. Horses that were thin skinned and prone to develop sore shoulders, should be worked with a folded bran bag placed under the collar. The bag should be washed occasionally to remove dried sweat and dust. If an extra horse or two were worked in the team, it would often be the means of keeping the team free from sore shoulders. Good wheaten hay chaff, cut when somewhat green, should be fed to the working horses, and if the work was heavy, crushed oats or bran should be added to the chaff. On no account, said Mr. Falting, should the horses be worked after the sun had set. The horses should be thoroughly groomed whilst they were feeding, and allowed $1\frac{1}{2}$ hours for breakfast and the same time for the mid-day meal. When the team was called upon to work a long day it should be allowed two hours for dinner. He did not approve of the "one yoke" system of working the team, whereby the horses were obliged to work six or seven hours without a break. If the team was fed in the field the collars should be removed in order to allow the animals to have their meal in comfort. Every farmer should endeavor to breed one or two foals each year, to maintain the strength of the team and to replace any animals that were sold. The brood mare should be kept in good health and condition, and she could, with benefit to her health, be worked within a fortnight of foaling time, provided the work was of such a nature that she would not be liable to strain herself. When there was not an abundance of feed in the paddocks, the foals should be given long hay or chaff. He thought it was a good practice to tie up the foals when they were being weaned. If that were done they would not knock themselves about and the handling would considerably lighten the work of breaking. If well-grown and in good condition, the colt could be put to work at $2\frac{1}{2}$ to 3 years old, but care should be taken not to overwork the youngster during its first season in the team. Finally, every farmer should keep on hand a supply of medicine for the common ailments of the horse.

THE ADVANTAGES OF GROWING OATS AND BARLEY.—The following paper was read by Mr. E. Lienert:—"Though wheat growing still seems to engage most of our attention in cropping operations, experience is teaching us that this crop is not so suitable to our soil conditions as oats and barley. We have had convincing proof of this in recent seasons. Ready markets and prevailing high prices are no doubt great factors in inducing farmers to give so much attention to the cultivation of wheat, but this is a short-sighted policy, and if persisted in, must eventually reduce our soils to a low state of fertility. I do not advocate discarding wheat growing altogether, but I do think oats and barley should constitute half the area sown; three-eighths oats, and one-eighth barley. The greater proportion of the wheat grown on the farm is carted off with all the fertility it contains, but if we are going to pay due regard to maintaining, and increasing our soil fertility, this practice must be limited as much as possible. Our soils are not very fertile through lack of humus. There seems to be only one way of increasing the supply of humus, and that is by carrying more livestock. Admitting that the oat and barley crops are those to which our soils are best adapted, it must afford the best means of increasing the stock carrying capacity on the farm. Viewed from the standpoint of general adaptation for feeding livestock, oats stand alone for horses. No other cereal can be fed to stock with

entire safety or in such large quantities. For cows in milk oats are at least as valuable as bran. It is for sheep that the growing of oats chiefly concerns farmers in this district, because we often have to resort to hand feeding. Barley for pigs and poultry is without a rival. Another advantage is the feed the stock are deriving from the oat and barley stubbles, which I value at double that of wheaten stubble. Apart from their usefulness for general feeding purposes, oats and barley are essential in our cropping system. On examining a heavy crop of oats or barley one rarely finds any weeds, and they also check the growth of summer weeds, such as stinkwort, hog weed, &c. This again gives a better chance for feed the following winter. Another advantage in growing these crops is that oats can be sown early and barley late, thereby helping considerably in distributing the rush of work at seeding time. As regards barley, which is liable to go down and thus become difficult to handle, one is able with modern machinery to harvest the greater portion of the crop. We can also afford to lose a small portion of the crop, for by growing barley we are adding from one-half to one ton of hay, or 10 to 15 bushels of wheat per acre, to the crop that is sown the following year.

SALISBURY (Average annual rainfall, 18.57in.).

July 4th.—Present: 12 members.

Mr. F. C. Fleet, who contributed a paper under the heading, "How Shall Money be Raised by Taxation for the Construction and Maintenance of Main Roads," first gave a detailed description of the term "main road," and outlined the way in which money was granted to district councils at the present time for the construction of roads. Many suggestions and different forms of taxation had been placed before the Government; wheel tax, motor tax, horseshoe tax, &c., but Mr. Fleet considered that if vehicles were licensed to travel on, or use, main roads, and the whole of the money so collected spent on the roads some improvement in the condition of the roads would be obtained. With the money obtained for such a tax he would include that raised from the licensing of vehicles, money paid by owners of motor vehicles, drivers, &c., and to further protect the roads the size and weight of a load should be limited and the speed of motor cars regulated. The annual Report of the work performed by the Branch during the past year was presented by the Hon. Secretary (Mr. A. U. Urlwin) and the officers were elected for the ensuing term.

CLARE, June 20th.—Mr. J. B. Harris (Horticultural Instructor for the Northern District) attended the meeting and gave an interesting and instructive address on the manuring of vineyards and orchards. During the afternoon Mr. Harris demonstrated the principles and practices of pruning to a good attendance of members and visitors.

LONE PINE, June 28th.—Mr. M. Ellis delivered an address, "Co-operation amongst Vinegrowers," to a gathering of 17 members and three visitors.

LYNDOCH, June 28th.—Arrangements were made for pruning competitions, held at Messrs. Springbett Bros.' Hillside Vineyard on Friday, July 13th. A programme of meetings was also arranged for the forthcoming 12 months.

SADDLEWORTH (LADIES'), June 12th.—Mrs. Beard contributed a paper, entitled "Uses for Old Newspapers," in the course of which she mentioned that newspapers could be used for polishing windows, boiling a kettle, and giving additional warmth when placed between blankets. When sheets of newspaper were placed between the clothes they would keep moths away. The writer wrote strongly against the use of newspaper for wrapping around food, which, she thought, should be prohibited. An interesting discussion followed, during the course of which Mrs. Melville mentioned that newspapers could be used for cleaning stoves. Mrs. Coleman then read extracts from the bulletin entitled "Fruit Preserving for Domestic Supplies," by Mr. Geo. Quinn, which was followed by a good discussion.

IONIER SEPTIC TANKS

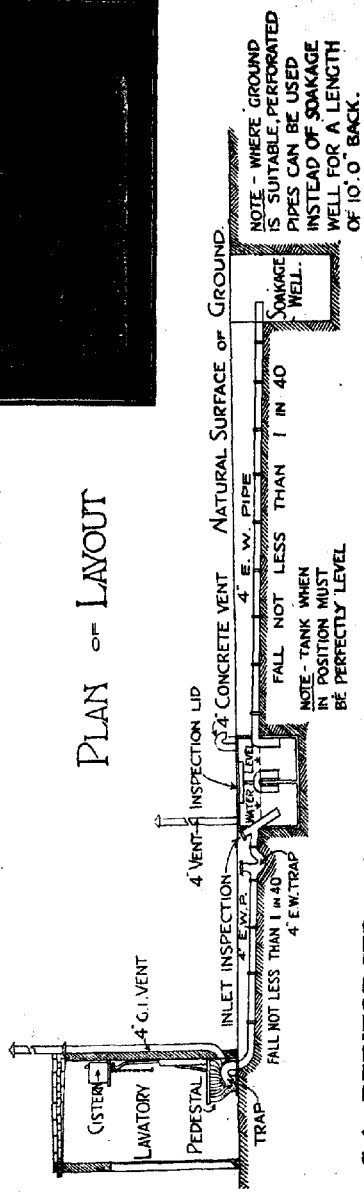
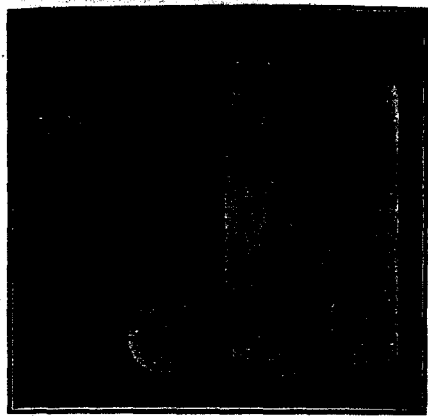
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STOCKPORT, June 28th.—Mr. C. Murray read a reprint from a New South Wales paper, entitled "The Tractor in the Wheat Belt," including notes on fallowing, late seeding, and fertilising. A short discussion followed the reading of the paper.

TARLEE, July 17th.—The Director of Agriculture (Prof. Arthur J. Perkins) attended the meeting and delivered an address, "Agricultural Practices Applicable to the Tarlee District learned from Booborowie Experiences."

WILLIAMSTOWN, July 27th.—Mr. E. D. Powell read a paper, "The Necessity for Sport," and an interesting discussion followed in which Messrs. J. J. Bain, S. Binning, G. Brown, and W. E. Grigg took part. The Hon. Secretary (Mr. Geo. Brown) presented the annual report, and the officers were elected for the year 1923-24.

YORKE PENINSULA DISTRICT.

(TO BUTE.)

BRENTWOOD.

June 28th.—Present: 23 members and two visitors.

ANNUAL MEETING.—The Hon. Secretary (Mr. G. L. Tucker) presented the annual report of the work performed by the Branch during the year 1922-23:—"I have much pleasure in presenting this, the annual report of the Brentwood Branch of the Agricultural Bureau. The last annual meeting was held on June 15th, 1922, when Mr. F. L. Carmichael was elected president and Mr. J. Boundy vice-president. The Hon. Secretary (Mr. G. L. Tucker) was reappointed. In accordance with the regulations, one-third of the members retired, and of these, Messrs. F. Vanstone, E. Vanstone, R. G. Anderson, D. R. Longbottom, and F. J. Nation were re-elected, and were subsequently approved by the Advisory Board of Agriculture. During the year 11 ordinary meetings have been held, and the programme of work drawn up proved a great success, with the result that at each meeting good discussions were initiated, and interest in the Branch has been well maintained. Five new members have been admitted during the year, exclusive of three whose names have been submitted for approval by the Advisory Board, and two members have left the district. The roll strength, not including the three not yet approved, is 26, and it is interesting to note that six of these are foundation members, forming the Branch in April, 1916, and nine have completed over seven years' membership. The consistency of these members has proved, and is proving, a potent factor in the success of the Branch. The average attendance at each meeting shows a decided improvement on last year's, there having been an average of 17.5 members and five visitors at each meeting. The following matters were submitted for expert advice:—Boils on horses, Mr. A. L. Vanstone; cow pox, Mr. Honner; Sudan grass as a fodder, Mr. F. H. Babbage; staked pig, Mr. A. L. Vanstone; breeding from affected mare, Mr. G. Fuller; feeding off self-sown crop, Mr. A. J. Babbage. Matters of importance submitted for the Branch's consideration were:—Farmers' School at Roseworthy, petition in regard to Turretfield Farm, many matters in reference to Yorke Peninsula Conference, crop-growing competitions (further information sought). The delegates to the Annual Congress were Messrs. J. Boundy and H. Le Poidevin, and at a subsequent meeting full reports were given of the proceedings. The Branch was represented at a pruning demonstration at Stansbury by Mr. F. L. Carmichael, who gave an interesting account of the gathering at our next meeting. The opening of the butter factory at Stansbury, the erection of which and the suggestion of an official opening this Branch being largely responsible for, was well attended by our members, who subsequently gave varied and instructive information for the benefit of those members unable to be present at the function. Another matter which it is hoped will result in great benefit to the district is the advocacy by this Branch of improvements and better shipping

facilities at Port Minto. In this connection, a deputation, of which Messrs. J. J. Honner and J. Boundy were the chief spokesmen, introduced by Messrs. H. G. Tossell and Peter Allen, M.P., waited on the Hon. Minister of Agriculture on April 11th, 1923. A strong case was made out, and was very sympathetically received by the Minister, who promised to place the matter before the Minister of Marine in as favorable a light as possible. One of the pleasing features of the papers read before our meetings this year was the number of them reprinted by different newspapers from the *Journal of Agriculture*, one paper in particular being printed in three different newspapers. This must be regarded as highly complimentary to those concerned, and is deserving of our heartiest congratulations. The following programme was successfully carried out:—1922—June, 'Afforestation,' Mr. J. H. Boundy; July, 'Fallowing,' Mr. H. G. Boundy; August, 'Care of Farm Implements,' Mr. R. Anderson; September, Question Box; October, 'Care and Management of Farm Horses,' Mr. A. L. Vanstone; November, 'Cattle on the Farm,' Mr. D. R. Longbottom. December, 1922, and January, 1923, recess. 1923—February, 'Harvest Report,' Mr. J. J. Honner, jun.; March, 'Destruction of Vermin,' Mr. F. Vanstone; April, lecture on a trip to Europe, Mr. H. G. Tossell, M.P.; May, Question Box. In addition to the above, one meeting was devoted mainly to making arrangements for the Conference. A selected paper on 'Mallee Farming' was read by Mr. J. H. Boundy at this meeting. The address given by Mr. H. G. Tossell, M.P., is deserving of special mention. This gentleman lectured about his trip to America and Europe to a large and appreciative audience, composed of members and visitors, and at the conclusion of his address all were thoroughly convinced that they had spent an instructive and enjoyable time. The comparisons drawn by the speaker between methods of farming adopted in other countries with those obtaining in our own were well explained, and clearly demonstrated the fact that Mr. Tossell is a keen observer. Perhaps of all the Bureau happenings during the year, the holding of the Yorke Peninsula Bureau Conference at Minlaton, on April 11th, 1923, evoked the greatest interest. The holding of it at this end of the Peninsula was the result of a motion submitted by our representatives at the 1922 Conference held at Moonta, the motion to hold the 1923 one at Minlaton being unanimously agreed to. Minlaton Branch being in a state of suspended animation, our Branch was requested to make the necessary arrangements, and these, with the help of the Weaver's Branch, were so well carried out that the unanimous verdict of those qualified to judge was that the Conference had proved an unqualified success. The Conference consisted of three sessions, at each of which were very satisfactory attendances. Our President, Mr. F. L. Carmichael, presided, and is to be congratulated on the manner in which he conducted the proceedings. The Conference was opened by the Honorable Minister of Agriculture, who gave a splendid opening address, and among other visitors were several of the Agricultural Department officers and the members of Parliament for this district, Messrs. Allen and Tossell. All of our members worked hard to make the Conference a success, but special mention is due to these gentlemen who contributed papers from this Branch:—Mr. F. Vanstone, 'The Destruction of Vermin'; Mr. F. J. Nation, 'Sidelines on the Farm'; Mr. A. L. Vanstone, 'Economy on the Farm'; Mr. E. Correll, 'Co-operative Shearing Sheds.' Much more might be said about the Conference, but I will content myself with voicing a word of appreciation of the catering done by the St. Benedict's Guild, and expressing the hope that the 1924 Conference to be held at Maitland may prove as successful, if not more so, than the last. The roll and attendances of individual members are as follows:—A. E. Twartz 11, R. Anderson 11, A. L. Vanstone 11, L. G. Boundy 11, R. G. Anderson 10, G. L. Tucker 10, C. H. Boundy 9, H. Le Poidevin 9, H. Launer 8, F. L. Carmichael 8, J. Boundy 8, H. G. Boundy 8, A. J. Babbage 8, E. Biddell 8, J. J. Horner 7, F. J. Nation 6, F. H. Babbage 6, F. Vanstone 6, E. S. Vanstone 6, C. A. Watson 6, A. Twartz 5, D. R. Longbottom 5, J. J. Honner, jun. 5, E. J. Haywood 4, J. Duncan 4, L. A. Traeger 3. Average attendance 17.5 members, 5 visitors, total 22.5. In accordance with the regulations one-third must retire each year, that is the lowest in attendance. Any, or all of these, may be reappointed, subject to certain conditions and the approval of the Advisory Board of Agriculture. In conclusion, gentlemen, I desire to thank you all for your loyal co-operation in

making the past year, the seventh since we started, the success I think you will agree it has been, and my earnest hope is that the Brentwood Branch of the Agricultural Bureau will ever prove an active and live concern."

POULTRY ON THE FARM.—In the course of a paper dealing with this subject Mr. A. J. Babbage expressed the opinion that the light breeds of fowls were the most profitable for the farmer to keep on his holding. He considered White Leghorns from a good laying strain to be the best type of general utility fowl. Pure-bred White Leghorn pullets that had been hatched in August or September would commence to lay when they were about five months old, while the young roosters could be used for table poultry. The Brown Leghorn was also a good type of fowl, it was more hardy than the White Leghorn, and if a good strain was obtained it should prove a profitable breed. The Minorca was another excellent breed, and although somewhat delicate, the birds laid eggs of an excellent size and quality. Unless the farmer had an incubator, the speaker considered that a few hens of the heavier breeds such as the Black Orpington, Barred Rocks, and Rhode Island Red should be kept for hatching purposes. The hens should be allowed to roam about the farm because that helped to keep them in good health, but one should, if possible, prevent the roosters from running with the hens. Six to nine hens should be kept in a pen with a rooster for breeding. Hens after they had been laying for three years should be replaced by younger birds. Clean water and plenty of good food were essential for the success of the poultry run. Geese were a payable form of poultry for Christmas trade, but they were somewhat troublesome to keep on the average farm. Indian Runner ducks were also profitable poultry, both for marketing and egg laying. Turkeys were difficult to rear, because they had to be allowed to run over a good area of ground, and as foxes were very plentiful in many of the country districts, the birds could not be raised to a marketable age unless fox-proof runs and houses were erected. In the discussion that followed Mr. H. Le Poidevin agreed with the paper in respect to the laying strains mentioned. He considered that more could be done in the poultry line, because their climate was one suitable to the rearing of robust chickens. In selecting egg-laying strains, importance should be attached to the size of the eggs produced, because the egg-pulp industry would consider that point in the near future. Not nearly enough attention was given on the farm to ensure a pure supply of drinking water for the poultry, and that resulted in less healthy birds and a poorer egg supply. Mr. R. Biddell thought that farmers depended too much on the feeding of grain to the poultry. He advised supplying the hens with a ration of cooked meat (rabbits, &c.) which would result in greater egg production. Mr. F. L. Carmichael pinned his faith to White Leghorns and Rhode Island Reds as the most suitable breeds for the farm. Although the eggs of the Reds were not so large as the Leghorns, yet the fowl itself was a good table bird and was not to be despised as a layer. Mr. A. E. Twartz considered that more attention should be given to the collecting of the eggs on the farm. They should be gathered at regular intervals, because it was not fair to the consumer to allow eggs to become affected through carelessness in that respect. He also recommended farmers to consider the matter of producing infertile eggs, because once these could be guaranteed they would command a higher market price. Mr. R. Farmer said that for egg production it paid to confine the laying hens. Suitable ventilation should, however, be provided. To obtain the best results for egg production, special feeding rations should be given, and by confining the hens, better control in that direction could be obtained and less food wasted. For breeding purposes more natural conditions should be observed to ensure robust stock. The supply of green feed during the time that natural herbage was scarce would amply repay a farmer's efforts, that being a matter which rarely received attention on a farm. Mr. R. Anderson agreed with a previous speaker in regard to the splendid laying qualities of the White Leghorns, and the general utility of the Rhode Island Reds. In reply, Mr. Babbage considered it might pay to shut up the poultry on a poultry farm, but for the ordinary "cocky" that entailed too much valuable time which was needed for better paying propositions, and he had found that letting the poultry roam about, feeding with plenty of grain seasoned at times with a supply of cooked meat, gave satisfactory returns with a minimum loss of time.

KILKERRAN.

June 26th.—Present: six members.

VARIETIES OF WHEAT SUITABLE FOR THE DISTRICT.—Mr. S. Jones contributed a short paper on this subject. No farming operations were more important than seeding, he said, and if a farmer neglected his seeding he did not receive the best results for his labor. The selection of seed was very important. Every farmer should see that his seed was free from all foreign matter and true to type. No variety of wheat could be said to be the best for all types of soil; different varieties would suit different types of soil. For the red and heavy soil, Federation, Major, and Nugget were suitable; in sandy soil King's Early was one of the best varieties, but not any of those varieties were suited to that district. In a good season Nugget and Major were the best varieties, but they were not to be relied upon on account of their susceptibility to black rust. A variety that was favored very much was Currawa. It was a mid-season wheat, and grew quickly at first, which was an advantage, because it was able to get away from the weeds. It was very easy to reap, stood up well, and was not susceptible to black rust. German Wonder was another good variety, but was not a quick grower, was very tough to reap, and tended to go down. He had sown it for three years and had received a fairly good average, but Currawa yielded 6bush, more each year. In regard to early wheats, he thought Red Russian was one of the best. He had sown it for seven years with good results, but now that the red wheats had been banned, he would not sow them again. Ghuyas was another variety that did well in that district. He had received rather poor results from Smutproof and King's Early. In the discussion which followed Mr. T. M. Geater remarked that different soils required different varieties of wheat, and the variable seasons made it very difficult to say which variety was the best for the district. Currawa was a good wheat, but if the spring was dry the early wheats, Smutproof and King's Early, would yield the best results. The Ford variety would stand a dry season well. Mr. B. A. Koch said the Queen Fan variety was suitable for his soil, but he thought the most important point was to get the seed in at the right time. Mr. B. J. Koch favored Ford. The Chairman (Mr. A. Wakefield) had found that different seasons had a great influence on the different varieties. He thought it was advisable to have at least three distinct types of wheat—early, midseason, and late. The Hon. Secretary (Mr. A. F. Sawade) said he had found Queen Fan and Currawa to be very good. He said members should not be afraid of sowing a wheat that had a reputation for producing straw, because in that district wheats did not, as a rule, develop much straw. In reply, Mr. Jones mentioned that he had grown all the varieties mentioned in the discussion and said that Ford had yielded well, but he had not mentioned them because he thought they could not say which variety was suited to that district unless they had been grown for three years consecutively.

FRIESIAN BULL FOR SALE

The Department of Agriculture has for Sale the Friesian Bull

CHEESEMAN DE KOL 6th.

Born July 15th, 1917, and bred by the executors of the late David Mitchell, Lilydale, Victoria. This bull is by Bolobeck de Kol, from Rosey 20th. The bull is at present at Mount Gambier.

PRICE, 30 GUINEAS.

Further particulars can be had on application to

THE DIRECTOR OF AGRICULTURE.

WEAVERS.

June 25th.—Present: 13 members.

AFFORESTATION.—Mr. J. Sherriff, in a paper on this subject, said the continual destruction of timber that was going on all over the world, and the very slight provision which was being made for either replanting or renewing forests, would result in a timber crisis in years to come. He did not contend that farmers should use land of their own that was suited for agriculture. He thought forestry was a national matter, and one which could only be handled by the State and Federal Governments, but there was an aspect of afforestation which should be the concern of each individual landholder. There was no doubt, that the planting of suitable trees, such as pines and gums, added very considerably to the appearance and the value of a farming property. At the present time, much was heard of the many uses to which concrete could be put on the farm, but the speaker held the opinion that concrete would never entirely take the place of timber for buildings and field engineering. Mr. Sherriff also considered that the destruction of forests also had the effect of diminishing rainfall. In their district, they had not yet felt the effects of a shortage of wood for firewood, but he thought that in a generation or two, firewood would be very scarce, and the farmer who had a plantation of timber on his property, would have a very valuable asset. He urged every farmer to make a practice of planting a few trees each year, and even if no commercial return was obtained from them, one would have the satisfaction of knowing the property would increase in value each year, and its appearance would be very considerably enhanced.

WESTERN DISTRICT.

COLLIE.

June 23rd.—Present: seven members.

BRUSH SHEDS.—In a paper on this subject Mr. J. S. Anderson said that if brush sheds were properly erected they would be very useful. They should always be constructed with a steep gable roof. The timber used should be long mallee, and the forks as large as it was possible to handle them. The forks should be placed 12ft. apart lengthways, and 10ft. apart in depth; thus, a shed with, say, 21 forks would be 72ft. long by 20ft. wide. The forks should be either tarred or charred as a preventive against white ants, and placed 3ft. in the ground. Those on the outside should be 8ft. high, and those in the centre 12ft. high, giving a slope of 4ft. Either mallee brush or good broombush would suit for roofing material, with a coat of good straw on top. The back and ends of the shed could be closed in with upright pines or mallee. A mistake was often made, he said, in loading too much brush and straw on a shed. That was not necessary, and the extra weight caused the shed to spread out. To prevent the forks from spreading, a wire could be twitched across between the opposite outside forks. That style of shed would keep out the wet, and would be much cooler in the summer. That type had also been known to last for as long as 30 years. In erecting a brush shed for use as a stable, he advised the same method with the manger constructed down the centre of the gable; the shed forks could then be used for the stall rails. A stable constructed with brush would be very cool for the horses during the summer. He would not advise using a brush shed for cocky chaff. If the following important points were observed the farmer would experience success with that style of shed:—1, Use the largest forks possible; 2, have plenty of slope on the roof; and 3, twitch the forks together at the top from front to rear to prevent spreading. In the discussion which followed, Mr. H. Shipard favored brush sheds because iron attracted the heat during the summer, and caused the wheels of the implements to become loose. Mr. Starkey favored iron sheds for water conservation. Mr. Lynch thought that sheds should be only about 16ft. wide, because the rain was more liable to go through a wide shed. Mr. A. P. Bowen said iron sheds improved the appearance of the farm more than those constructed with brush. The President (Mr. J. A. Dodgson) then gave an interesting account of his travels in Egypt.

COLTON (Average annual rainfall, 17.01in.).
June 29th.

THE MOUSE PEST.—In the course of a paper dealing with this subject, Mr. M. Kenny cited instances of mice ruining large stacks of hay, particularly during the year 1915. During the season 1921-22 he grew a very good crop of oats on his farm, and to protect the hay from the ravages of the mice he erected a structure of the following dimensions and material:—A row of seven posts each 1ft. 9in. above the level of the ground and 4ft. apart was set out to form the sides of the structure, the width between the corner posts being 15ft. Three similar rows of posts were placed between the two outside rows, but those posts in the middle were not placed firmly in the ground. Kerosine tins, the bottoms of which had been cut out, were placed on the top of the posts. Sixteen feet lengths of 3in. by 2in. stringy bark were placed on top of the tins and nailed down. A floor of rough timbers was made and upon that 25 tons of hay were stacked. Mr. Kenny stated that he was at present using the hay and there were no signs of mice having been through the stack. In stacking grain it was a good plan to leave small spaces between the bags so that cats could crawl through the stack and destroy the mice.

GREEN PATCH (Average annual rainfall, 26.56in.).
June 25th.—Present: seven members and 10 visitors.

PRUNING.—Mr. Whillas contributed a short paper dealing with this subject. The objects of pruning, he said, were to increase the quality and size of the fruit, to make the trees bear regular crops, to remove injured, worn out, and dead wood, and to assist in the formation of the tree. Pruning was generally carried out with the idea of training the tree to grow in the shape of an inverted cone, so that the centre would be kept open to admit sunlight and air. Provision should be made, however, for lateral growth in the centre, to provide shade for the main and secondary arms, otherwise the bark on the tops of the arms would be injured by the sun. All tools should be sharpened and cleaned before being used for pruning. The vigor of a tree depended very largely upon the growth of leaves, because these were the breathing organs of the plant. The nearer a shoot approached a vertical position, the stronger would be the growth, whilst the reverse applied to a shoot making a horizontal growth. The sap flowed most freely to the highest point of each shoot. A tree that was not making very much growth was more likely to set and mature fruit than a young tree that was making a lot of growth. To check the growth of young trees after they had the required number of leaders, and to make them throw out spurs, it was a good plan to allow the leaders to go unpruned for a year. After they had spurred, they should be shortened back, otherwise they would bear fruit near the top of the tree and cause the limbs to break off, thereby spoiling the shape of the tree, and the loss of some of the leaders. Once the leaders were formed, they could be kept intact and there would be no further branching nor formation of forks.

MALTEE.

June 22nd.—Present: 12 members and two visitors.

FALLOWING OPERATIONS.—In the course of a discussion on this subject Mr. J. Shorne expressed the opinion that fallowing operations should be commenced immediately after seeding, provided the rubbish had made a good growth. Mr. Edson inquired whether the disc plough could be used for fallowing. Several members spoke on the question and stated that such a plough could be worked with advantage. In regard to the question as to the most suitable depth at which to work the land, Mr. Martin favored ploughing the soil 3in. deep. Mr. Bassham considered 4in. the best depth, while Mr. C. Schwarz said that the land in their district should not be ploughed to a greater depth than 3in. Mr. J. H. Will said he would not work the land in the Maltee district more than 2in. in depth, during both ploughing and cultivating operations. Members favored the spring-toothed and the scarifier type of implement for keeping the weeds in

check on the fallow. To prevent the fallow from drifting, they advised leaving strips of uncultivated land through the centre and around the sides of the paddocks. It was also considered that strips of land could be sown with oats or barley, and these could be fed off or cut for hay, and would assist in preventing the soil from shifting.

MILTALIE (Average annual rainfall, 14.55in.).

June 23rd.—Present: four members.

DESTROYING FOXES.—The monthly meeting of the Branch was held at Mr. J. P. Story's homestead, and took the form of a "Question Box." After the various well-known and approved methods of poisoning foxes had been discussed, a member described a method of trapping foxes that would not take baits:—"First bury any carcass which is at hand in a place that is likely to be visited by foxes. Then set two or more traps, which should not be secured to the ground, but weighted with old ploughshares, on either side of the buried carcass. The decoy should not be buried too deeply, because it is the habit of the fox to scratch away the earth from any carcass which they can smell."

ROBERTS AND VERRAN.

June 28th.—Present: seven members and one visitor.

CARE OF IMPLEMENTS AND MACHINERY.—In a paper on this subject, Mr. H. Lewis said that a shed should be provided for all the machines on the farm. He would also have the implements painted in order to preserve the wood and iron. They should be well oiled, and the threads of the bolts should also be oiled to prevent rust. The nuts would then unscrew easily when required. Breakages should be attended to immediately they were noticed. By prompt attention, serious injury, and perhaps complete breakdown might be avoided. Wagon wheels, etc., could be preserved during the hot weather by coating them with raw linseed oil. That would not only preserve the timber in the wheels, but would also prevent the spokes loosening. If those and similar methods were adopted on a farm, there would be a great saving of both expense and trouble. In the discussion which followed, Mr. H. Simmonds said that implements should be protected from the weather; he would also keep the bolts greased to prevent them rusting. The machines should be repaired as soon as possible after breakages occurred. Mr. B. Evans also thought a shed was a necessity. He would prop up the ends of the stripper and harvester combs when not in use to prevent them sagging. The binder canvasses should be rolled up and hung where mice could not reach them. Painting also preserved the woodwork. Mr. M. Masters thought the open part of the shed should face the south-east. When time could not be spared for painting all the implements, he thought it would be a good plan to dab paint over the nuts to prevent them rusting.

SMOKY BAY (Average annual rainfall, 13.06in.).

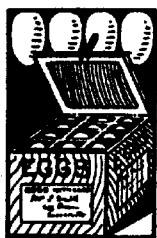
May 26th.—Present: seven members.

Mr. L. L. Barlow contributed a paper entitled "Some Experiences in Tank Construction." He preferred rocks as a natural run when they were available, but that would entail a great amount of work in clearing. He thought the most economical method was to plough the land deeply at first and then clear it with a scarp. He had found that swamp clay was an excellent substitute for mortar, but it entailed more work in mixing. He said lime was liable to fret when used as mortar. In building, the face of the wall was left as open as possible, and then flushed up with sand and cement in the proportion of six to one; it was then finished off with the usual coat of cement. Swamp clay had also proved satisfactory as a water run; it should be mixed up when very wet and put on a bed of cracked stones and then rammed down and tarred or cemented over. A good discussion followed the reading of the paper.

NINE TIMES AS MANY EGGS!

Thanks to **KARSWOOD POULTRY SPICE**
(Containing ground insects).

NEW laid eggs are selling readily these days, at fancy prices—a golden opportunity for backyard poultry keepers whose hens are laying well. Are *your* hens laying, or are they still parlor boarders? Eating with alacrity all the scraps and feed you give them,



but, in return, doing no more than lay an occasional egg. If so, then the remedy is easy to apply, and costs you no more than a half-penny a

day for every 12 fowls. Here we publish a letter from an English user of Karswood Spice (containing ground insects), which gives practical proof of the value of Karswood during a period when eggs are not plentiful. Karswood works naturally on the birds. It cannot "force," and is guaranteed to contain no injurious ingredients. Read the letter below and decide to make a start yourself.

NINE TIMES AS MANY EGGS

"Edwards Cottage,
North Somerootes, Lincs.

I feel I must write and tell you the result, in my case, of using your Karswood Poultry Spice for my birds. From 35 hens for the month of October, 1921, I got 31 eggs without Karswood Poultry Spice. Last month, from 32 birds, the same ones, using Karswood Spice, I got 278 eggs. Last November, without Karswood Spice, four eggs for the month: for four days of this month, 38 eggs. You can use this as it pleases you. I got the Karswood Poultry Spice from Mr. Armstrong of this village.

W. L. SAUNDERS.
November 4th, 1922."

There is the proof. You can do just as well with your own backyard hens, and the cost is only $\frac{1}{2}$ d. a day for every 12 birds.

NOTE THE ECONOMY.

1s. packet supplies 20 hens 16 days.
2s. packet supplies 20 hens 32 days.
13s. tin (7lbs.) supplies 140 hens 32 days.
14lbs. tins, 25s. 28lbs. tins, 45s.

COSTS $\frac{1}{2}$ d. A DAY TO MAKE 12 HENS LAY.

Ask your storekeeper or produce dealer to supply you with a 1s. packet of KARSWOOD POULTRY SPICE and try it for a fortnight on half a dozen hens. Results are not instantaneous—it takes a fortnight or three weeks to produce results—for Karswood works naturally and not suddenly.

If your local dealer cannot supply you, drop a postcard to the agents for your State, who will put you in touch with your nearest supplier.

AGENTS FOR SOUTH AUSTRALIA,

S. C. EYLES & Co.,

CURRIE ST., ADELAIDE.

NOTE: If supplied by Agents direct, postage must be added to cost.

KARSWOOD POULTRY SPICE.

GUARANTEED NOT TO FORCE THE BIRDS.

WIREBULLA.

June 23rd.—Present: 17 members and visitors.

FALLOWING.—Mr. J. M. Souter, who contributed a paper dealing with this subject, expressed the opinion that much of the success that a settler made at farming could be attributed to the manner in which the land was fallowed. It had been the usual practice of most of the farmers in that district to crop the stubble land, but he believed that under present conditions it would be more profitable to graze stock on those paddocks that had been cropped successively for two or three years. When cropping stubble land, one could not depend on the moisture that had been stored in the soil during the previous year, but in most cases a profitable crop could be grown on good fallow land if the subsoil was in the right condition. Fallowing, to obtain the best results, should, in most instances, be commenced immediately after seeding, and be completed by the end of August. For that district he advocated working the land to a depth of 3in. to 4in. Where a farmer had sheep, it was a good plan to run the flock on the fallow to keep the weeds in check. If the land was very wet during fallowing, 50 to 100 acres should be ploughed, and if the weeds were making a strong growth the plough should be stopped, and a set of harrows or a spring cultivator should be run over the land to kill the weeds. The spring-toothed cultivator should be worked in the spring to destroy the weeds on the fallow and to assist in the preparation of the seedbed. The harrows should be worked after every fall of rain to help the soil to retain the moisture. Prior to the sowing of the seed, the land should be worked with the cultivator to a depth of about 1in. to 1½in. to form a good seedbed. After the drilling was completed the land could be finally worked with the harrows.

YADNABIE (Average annual rainfall, 14.09in.).

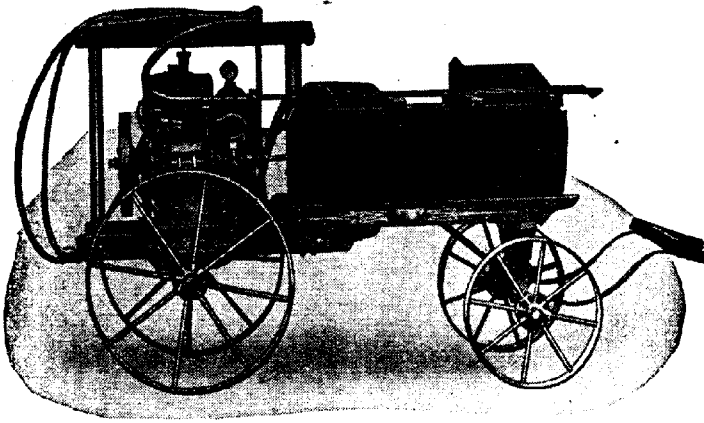
June 26th.—Present: 15 members.

THE ADVANTAGES OF THE COMBINE OVER THE DRILL AND CULTIVATOR.—In a paper on this subject, Mr. E. J. Dolling said he wished to point out the advantages of the combine as a time and money saver for the farmer. The price paid for a 16-row combine was about £100, and the machine could be worked with eight horses over almost any class of soil in that district. A 9ft. spring-tine cultivator would cost about £50 and would require seven horses to work it. A 16-row drill would cost approximately £75 or £80, and would require four horses. The total cost of the drill and cultivator would be from £125 to £130, therefore there would be a saving of £25 or £30, besides one driver and three extra horses. Other advantages were that the seed was sown on a better seedbed, and was more evenly distributed, also there was not so much space left between the rows for weeds to thrive. He was of the opinion that if a farmer once used the combine he would not go back to the drill. The combine was provided with a forecarriage, therefore there was no weight on the necks of the horses, and the collars were not damaged as with the poles of an ordinary drill. He found the best way was to drill round and round the paddock; no time would then be wasted turning corners. As the machine could be put out of gear whilst working, the corners would not have to be drilled twice. During the discussion, Mr. W. E. Hier thought it would not pay the farmer to scrap his drill and cultivator and purchase a combine, but if he had the choice he would certainly buy the latter. He thought the drill could be provided with a forecarriage with advantage. Mr. J. J. Deer said the combine was an efficient implement on good land, but took the place of a hoe-drill only, and that implement would work better than a combine in large stumpy country. He was not in favor of a forecarriage on the drill. Mr. E. J. Richardson observed that when a combine was used, the wheat was sown quickly, and received all the winter rains. Mr. O. Forbes said the combine was an advantage over the drill where the land had been prepared for the drill and heavy rains fell before drilling was completed. He was of the opinion the implement was not a success in new mallee country, and it would not pay the farmer to have one for working the fallow only. Mr. P. J. Dolling considered a combine would work where a hoe-drill would not, because the clearance was greater, and the tynes, on going over the stumps, loosened the rubbish, whereas the hoe-drill was likely to drag it

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along. He did not consider it a good implement for new mallee land, but it spread the seed well on fallow land. He had gone over 400 acres with his combine and had broken only one tyne. He used a set of trailers behind the combine. Mr. F. W. Jericho had worked a combined implement successfully during last seeding, and he thought it would work well on new mallee land if the front row of tynes were raised. The Hon. Secretary (Mr. A. Jericho) said he was not favorably impressed with a forecarriage on a drill.

YEELANNA.

July 21st.—Present: 10 members and two visitors.

GERMINATION TESTS.—Mr. R. Wemyss reported having conducted the following germination tests with small quantities of grain:—Unpickled wheat gave a germination of 83.5 per cent. Wheat turned over on the floor three times with a shovel in a 1 per cent. solution of bluestone gave a germination of 75 per cent. Wheat hung in a bag in a 1 per cent. solution of bluestone for the same time as it took to turn the wheat pickled on the floor gave a germination of 82 per cent. A long and keen discussion followed.

GREEN PATCH, July 23rd.—The meeting discussed the increased fares and freights between Port Adelaide and Port Lincoln. The Hon. Secretary (Mr. R. L. C. Sinclair) presented the annual report, and the officers were elected for the forthcoming year.

LIPSON, June 23rd.—Mr. E. J. Barraud delivered an interesting address, "The Tractor *versus* Horses," and a keen discussion followed, in which each member present took part. The delegates to the Annual Congress were also appointed.

MOUNT HOPE, April 28th.—A paper, entitled "What a Child can Learn from a Well Arranged School Garden," was read by Mr. V. Wladrowski. He dealt with the subject first from the point of view of the nature of the undertaking in the garden, and secondly, the education which a child would secure from these operations. Starting with the seed bed, he discussed its structure, enumerated the plants which should constitute the garden, and described the operations of budding, grafting, cineturing, and pruning. The cross fertilisation of plants, such as poppies, was suggested as likely to be of particular interest to school children. An interesting discussion followed, in the course of which it was suggested that the paper might, with advantage, be read before the local school children.

YEELANNA, June 23rd.—Present: 10 members and three visitors.—The monthly meeting of the Branch took the form of a question box. One member asked for information respecting the best month for lambs to be dropped. The general opinion was that May was the best month. In answer to another question, members thought that Canaan would be the best variety of wheat to sow on new land in that district. The officers for the ensuing 12 months were then elected.

TALIA, June 16th.—Various matters of interest were discussed before a large attendance of members.

EASTERN DISTRICT.

(EAST OF MOUNT LOFTY RANGES.)

BLOCK E.

June 26th.—Present: 21 members.

BUDDING AND GRAFTING.—In the course of a paper dealing with this subject, Mr. W. E. Ashenden said budding should be performed when the sap in the tree was flowing strongly. The bark of the tree should lift easily on being

raised, and the sap should follow the incision made with the knife. A sharp knife was most necessary, and a bone or wooden blade should be used for raising the bark. Only mature buds should be used, and these should be selected from approved stocks. It was important to bind the cut in order to exclude air and water, but care should be exercised not to cover the bud. Grafting should be performed in a careful manner, great care being taken to see that the inner bark or scion and stock united, otherwise the graft would not "take." Grafting wax was to be preferred to clay, because the former was waterproof and did not crack. The following recipe for making grafting wax was supplied by Mr. Ashenden:—Melt in a tin over a stove, not over an open fire, 1½ lbs. beef dripping without salt, add 2 lbs. of beeswax that has been cut into small pieces; stir well and add 1 lb. of powdered resin. Boil the mixture for half an hour. The wax if properly made should "work up" in the hands and keep for an indefinite period.

KI KI.

May 26th.—Present: five members.

THE WORKING MAN'S BLOCK.—In the course of a paper under the title, "The Possibilities of the District for the Laborer to Make a Home and a Living," Mr. L. Angus suggested that the man working for an employer should make an application to the Land Board for a block of land containing about 20 acres to 40 acres on the sandy slopes overlooking the township of Ki Ki. Any time that the laborer had at his own disposal he could be engaged on his own piece of land grubbing and preparing about 10 acres of the block for the cultivation of fruit trees and vines. A site should be selected for the house, and the stone for building could be taken off the block and carted ready for the building. The remaining area of land could be sown with a crop of hay for feed for the horse which would be necessary to cultivate the garden. Mr. Angus thought the grapes could be dried or syrup manufactured from them, for he believed the time was not far distant when grape syrup would take the place of sugar.

LAMEROO (Average annual rainfall, 16.55in.).

May 26th.—Present: 15 members.

UTILITY POULTRY.—The following paper was contributed by Mr. W. Kriewaldt:—"To make this paper as interesting and instructive as possible I shall first of all endeavor to show whether poultry, as a side line, can be raised profitably on a farm. The most simple way to do this will be to quote from the records of my flock. The following is a record of 100 pullets—White Leghorns that were hatched during the month of September. These pullets commenced to lay in February. The cost of rearing these pullets, figuring all food consumed at its market value, was 4s. per bird, making a total of £20. From

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February, 1922, to February, 1923, these hens cost £35 more in feed, lime, shell-grit, &c. This makes a total of £55 expended to rear and feed pullets for one year after commencing to lay. The profits derived from these birds were as follows:—1,700 dozen eggs at an average of 1s. 3d. per doz., amounting to a total of £106 5s. This leaves a net profit of £51 5s. for the 100 hens. The time expended to care for these birds was about half an hour each day. These figures, I think, prove conclusively that the hens paid, and paid well for the labor and trouble spent on them. One of the main points in the successful rearing of the birds is to start off with a good laying strain of one of the recognised utility breeds. First and foremost amongst these, ranks the White Leghorn, with the Black Orpington, Brown Leghorn, and Red Sussex following close behind. The Black Orpington and Red Sussex have the added advantage of being excellent table birds. There are several ways in which a beginner can make a start with pure-bred poultry. The best plan for the farmer, who already has some poultry, would be to buy settings from some reliable breeder. Later on, if he feels so inclined, he could pen up the pullets reared on the farm with a good cockerel of the same breed, and so form a good breeding pen. In this manner he could gradually cull out the mongrels and breed up a flock of pure-bred birds. There are two methods a farmer can use to hatch out chickens, namely, with a broody hen or with an incubator. If he only desires to keep a flock of 150 to 200 hens, the broody hen would be the simpler method. But any number over this would require an incubator and a brooder. The hot air incubators are the most commonly used. These are just as efficient as the hot water incubators, but require more constant and skilful attention. I would advise buying a large machine, not less than a 200-egg capacity. The reasons for this are as follows:—1. You can hatch out all chickens at the right time. That means here during the month of September. At that time the roughest winter weather is over, but there is still plenty of green grass, which is one of the most essential foods to promote growth and early maturity. 2. The chickens during the first week need a great deal of care and attention, and so, by having them all out at the same time, this would only need to be given once. While one is caring for them it is just as easy to care for 500 as for 20. 3. The larger machines take much less fuel in proportion to heat them. When we add to this the fact that a large machine needs no more care or attention than a small one, the advantages of a large machine are apparent. The correct temperature at which to run an incubator is 101deg. the first week, 102deg. the second week, and 103deg. the third week. If the chickens commence to hatch out on the evening of the twentieth day it can be taken that the mean temperature has been correct. One of the main difficulties with incubators, especially in this district, is the moisture problem. The only advice I can give on this point is to follow the directions of the incubator manufacturers as closely as possible, but instead of beginning with the moisture as directed, start two or three days earlier, because this climate has a tendency to dry out the eggs more rapidly than usually happens in other parts of the world. It is often a good plan, when one notices that the eggs are chipping, to sprinkle them with luke-warm water, taking care, however, to do this quickly in order not to chill the eggs. Then the flame should be turned up a little higher, because the water will cause the temperature in the incubator to drop. Very soon the temperature will go up to about 104deg. or 105deg. F. and this will cause the warm air to take up the moisture on the eggs and commence circulation. The lining and shell of the egg are softened by this moist air, and the chickens are enabled to break through more easily and without sticking to the shell. After the chickens are hatched they should have no feed for 24 hours. After this some flaked oats, bread crumbs, and the hard-boiled yolk of an egg can be given to them. This should constitute the feed for the first week. After that they can be given crushed wheat and other crushed cereals. They need constant care during the first week, but after that, if they have a run of their own where they can be fed, they practically take care of themselves, if the weather is fine. If the brooder is put into the run, the chickens soon learn to go in and get warmed up after being out for a while. The sexes should be separated as soon as one can distinguish them. It is a good plan to pen up the cockerels and get them ready for market as soon as possible. If they are of a light breed it will not pay to keep them more than three to four months, because, as I mentioned before,

it costs 4s. to feed them until five months of age. The prices for them usually range from 3s. to 4s. so they are often raised at a loss. Many of the commercial poultry breeders kill the cockerels as soon as they can be distinguished. There are two different methods of feeding adopted by the leading poultry men, namely, the dry mash and the wet mash. The simpler, and more suitable for a farmer is the dry mash system. In this system all the mash is prepared some weeks ahead, and the hens can help themselves. The following is a mash that is being used by many poultry farmers:—100lbs. of bran, 200lbs. of pollard, ½lb. of salt, added to this bone-meal and blood-meal or meat-meal. The last named article I have always given more or less according to the time of the year. This should all be mixed thoroughly and placed in a dry hopper, arranged so that the birds can help themselves. They are not sufficiently fond of it to gorge themselves, but will eat it if they cannot find enough other food. In this way one need not be afraid of under or over feeding. In the wet mash system, the same feeds are fed, but they have to be mixed fresh daily, and as the hens are very fond of the wet mash, there is a danger of over-feeding them and getting them too fat. Especially is this the case with the heavy breeds. In conclusion, I would like to say that in my opinion a good hen, well taken care of, will make a profit that will compare favorably with any one of our farming operations.’

LOXTON (Average annual rainfall, 12in. to 13in.).

May 31st.

CITRUS CULTURE.—In the course of a paper dealing with the care of citrus trees from the time of planting up to the third year of growth in the orchard, Mr. S. V. Fuller first gave a brief outline of the history and peculiarities of the citrus family. The paper then read as follows:—‘The citrus family is a most hardy and long living one, provided conditions are not altogether uncongenial, and will respond quickly and readily to good treatment. The trees are able to withstand great heat, and a few degrees of frost without damage. Citrus trees are particular in one respect; they will not stand cold wet feet, they must have good drainage, or an ideal soil consisting of a strong sandy loam with a gravelly or open subsoil. It is surprising how well oranges will do in a naturally poor soil, provided they have fair treatment and good drainage. The wants of this family are peculiar, and to some extent different from those of other fruits, and I believe failure in orange culture in many cases, is not so much due to effects of soil and climate, as carelessness or ignorance in the management of the trees. I consider the planter should consider carefully the following eight points in order to bring about good results:—(1) Suitable climate and soil; (2) proper preparation of the soil; (3) correct stock trees worked on and procured from healthy selected stock; (4) a regular supply of congenial food; (5) water supply during periods of drought; (6) to disturb the roots as little as possible; (7) to keep the ground free from weeds and undergrowth; (8) shelter from strong winds. Assuming the intending planter has found a suitable spot, and paid due attention to soil preparation (by this I mean land to be well broken up by means of a plough and subsoiler to a depth of 18in. to 20in. if possible), the next point to be observed is the selection of the trees. Naturally these should be of a robust, healthy appearance, and of a good dark green color, but particular care must be paid to the stock on which the plant is to be budded. There are a number of stocks that the orange family can be worked on, such as citronella, seedling orange, Seville, and citrus trifoliata, and others. Of these citronella and seedling orange are to be preferred. In these parts, and in fact anywhere in the Murray Valley suitable for orange culture, I certainly give citronella first place, because it is undoubtedly hardier, and also brings the tree to maturity more quickly. Citronella must have good drainage, and although I have seen it doing apparently well in heavy soils on the Adelaide plains, it does not live long, and occasionally a tree will go off suddenly at an early age, on cold soils with indifferent drainage. Seedling orange is undoubtedly a good stock and one which grows better on cold sticky soils than citronella, but it is slow, and given

the advantage of the good drainage we have in these parts, why not use the citronella in preference. Next comes the planting. There are two planting seasons, before and after winter; never attempt to shift oranges during cold or wet weather. When trees are planted in the autumn, there is a certain amount of warmth in the ground, root action begins quickly, plants revive after removal, and become firmly established before the advancement of winter, and, further, these trees are in a good position to stand up to the first hot spell in the coming summer. I may state here that although, generally, autumn planting is advantageous, yet it does occur sometimes that a late summer causes a late hardening of the young plant which renders it somewhat too tender for removal. Inquiries as to this should be made from the nurseryman, and if necessary, planting would be better left until the forthcoming September. On receipt of plants from the nursery, water them well over the leaves before removing them from the case. Plant at once if possible, but if not, place the trees in a shed sheltered from the wind until a more convenient time. Great care must be taken to avoid damage to the young fibrous roots. These are all wanted, and neither must they be exposed to the air longer than is absolutely necessary. Choose if possible, a moist or dull day for planting. Be careful not to plant the young trees too deeply. In some soils, this is a fruitful cause of a disease known as collar rot. Remove one-half of the growth on the trees at the time of planting, the young roots cannot support so much at that time. Oranges and lemons should be planted from 20ft. to 24ft. apart each way. The Mandarin or Tangerine section being less robust in habit is spaced from 15ft. to 18ft. apart. After the trees have been planted, the soil must be kept thoroughly cultivated, weeds kept down, and regularly worked for the first year. The usual periods of irrigations which hold good in irrigation settlements are too far apart, and during a hot spell, young trees suffer from drought before the next water supply comes along. In this case use must be made of the water cart. Young trees allowed to become over dry are in danger of becoming sunburnt and bark bound, which materially affects their future, if indeed it does not ruin them altogether. Citrus fruits have greater requirements than many other fruits in the way of manures, because they practically have no rest period. No sooner is one crop off than another is on the way, and so they are working all the time. For the first two years, the manures applied should be placed fairly close to the trees. After the trees are two years old, the manure can be either drilled or broadcast down the rows. Superphosphate and bone dust are both excellent manures for young citrus trees, or a mixture of the two may be used. Dressings of 2cwts. to 3cwts. per acre are sufficient up to two to three year old trees. Apply bone dust in autumn, superphosphate in spring, and cultivate immediately afterwards. An important point with newly planted trees is that of making a light mulch around the tree. This keeps off the direct rays of the sun, and retains the moisture for a much longer period. Stable manure, grass, or old straw can be used for this purpose. Stable manure, of course, brings best results because it adds a certain amount of nutriment to the soil. At the end of the first year the appearance of the young tree will be more or less a bunch of short shoots from 12in. to 18in. long. Nothing very definite can be done at this stage in the way of pruning, but at the end of the third year, providing the tree has had fair treatment, many of the shoots should be anything from 2ft. to 5ft. in length, and from these the future tree has to be framed. Select three strong shoots growing away in opposite directions if possible. These are to be the first mains, all other shoots must be cut back close into the stem, but do not entirely remove the leaves on the small remaining portion, because these help to provide shade from the sun. The heads of citrus trees should always be trained low, so as to provide shade for the stems. These first main limbs must not be lost sight of, although it will be found that in after years, other mains will introduce themselves higher up as the tree grows, but with a definite framework to start on from the first set, it will be found much easier and more convenient to arrange those that come after in their proper places. In conclusion, I must allude to one point, that is never work a plough in the orangery after the second year. You cannot plough without injury to the roots. All the most important roots of the orange are close to the surface, and if the plough is worked damage must be caused, which is bound to have its effect on the young trees.'

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MONARTO SOUTH (Average annual rainfall, 14in. to 15in.).

June 23rd.—Present: 15 members.

CLEANING AND WORKING NEW LAND.—Mr. E. Hartmann, in a paper on this subject, said that the first work to be done on new land was breaking down the scrub, and that could best be performed with a scrub roller and six horses. The rolling should be carried out during October or November, in order to allow the timber to become thoroughly dry for burning. The best time for burning, he thought, was during the end of February. Ploughing could then be commenced. Oats would be the best first crop to sow on sandy soil; one would then be more likely to get enough stubble for a good burn the next year to destroy as many of the shoots as possible. During the second season the land should be sown again, with 100lbs. of manure to the acre. After the crop had been taken off, the stock could be kept on the land for some time to knock down the straw in preparation for another burn. The land should then be left for two years without cropping. During the discussion which followed, some of the members thought that the most effective method of clearing shoots from new land was to crop it for four years in succession. The last crop would be a poor one, but the practice would pay by assisting to clear the land. One member said he would crop three times, twice with oats and then with wheat. He said he could get the best stubble burns from oats. Mr. Hartmann would plough new land 1½ in. to 2 in. deep.

MOOROOK.

June 29th.—Present: 11 members and visitors.

VINE DISEASES.—A paper dealing with the subject, "Vine Diseases," was contributed by Mr. S. Sanders and read by the Hon. Secretary (Mr. E. A. Liddicoat). The paper dealt chiefly with the ways of detecting and treating black spot and oidium, and the writer laid stress on the importance of timely and effective applications of fungicides. For oidium, two dustings of sulphur were usually sufficient to check the disease. These should be given just prior to the flowering of the vines and during fine weather. For black spot the writer preferred an acid-iron mixture for a winter treatment, thorough applications being absolutely necessary to deal effectively with the disease.

MURRAY BRIDGE.

May 16th.—Present: 20 members and visitors.

IS LUCERNE THE MOST PROFITABLE CROP THAT CAN BE GROWN ON LOCAL SWAMP LANDS?—The meeting took the form of a debate on this question. Mr. J. G. Kuchel, in speaking for the affirmative, said that lucerne had long been recognised as the king of fodders, and he believed that it would long continue to be so recognised on account of its great value as a fodder. Lucerne was a great protein producer. It could be reckoned that a crop of lucerne would give 10 tons of green fodder per acre. Other fodders would only give two crops per annum at most, whereas five cuts of lucerne could readily be obtained, thus the lucerne would give a much higher value of protein. The speaker considered the cost of establishing a stand of lucerne would be about 11s. 8d. per acre. Most other crops would cost more. Mr. F. Hannaford, leading the negative side, said it was a good thing to have a little lucerne, but not at the expense of pushing out all other crops. A very necessary thing in dairy farming was a balanced ration. Lucerne was practically done in March, and maize was a crop that was cheap to grow on reclaimed swamp land, and would give yields up to 40 tons per acre where the conditions were suitable. For winter feeding berseem had proved a splendid fodder, and with maize in summer, would give both variety and quantity. Also oats and tares or oats and peas gave good results, and should be more generally grown. Lucerne should be kept, but a rotation of crops was most important. Moreover, lucerne should be cut in the cool of the morning or evening to prevent loss of leaves in hot weather, which meant

much labor at an inconvenient time. Mr. E. Nelson, the second speaker for the affirmative, said the low state of the river and the salinity of the water frequently made irrigation in autumn very difficult, so that it was often impossible to get berseem sufficiently early. By sowing rotation crops late in winter, the summer crop would be made late, i.e., the maize would have to be sown in November. Moreover, rotation cropping tended to induce the growth of weeds. It was often found that the wild millet choked out Japanese millet. Also the rotation of crops tended to exhaust the soil much more than did lucerne. The surplus lucerne of summer could easily be conserved for winter, and the lucerne paddocks could be grazed at the same time, thus giving green and dry fodder at the same time, a fact which could not be said for any other fodder. Mr. Fletcher, for the negative, said lucerne was good, but more variety was needed, and it was nearly always possible to irrigate in autumn and start the rotation crop. The wild millet trouble could be overcome by good cultivation, and 3 or 4 tons of good eaten hay could be grown per acre in winter. Moreover, too much lucerne tainted the dairy produce, and was wasted if fed alone in excessive quantities to cattle. Also other crops could be grown on the swamp lands, which did not depend on the dairying industry. Mr. J. Lehmann, for the affirmative, said lucerne was not an expensive crop to grow, and that its value per acre could be reckoned as £16 worth of cut lucerne and £3 worth of grazing, equalling £19 value per acre, from a cost per acre of 11s. 8d. to establish. He considered that maize on the same reckoning would be about £2 9s. per acre, because he considered that maize gave much lower results than were quoted by the opponents. He maintained that on a protein basis a ton of maize would be worth 2s., while a ton of lucerne would be worth 7s. 6d. Mr. A. R. Hilton, for the negative, said it was a mistake, as the negative side had said, that dairying was the only or most important form of industry to which the swamp lands could be put. Analysis had shown that the soil was similar to the rich land of the valley of the Nile, which would grow cotton and many other valuable crops. It had been proved by a member of their Branch that fruit could be grown profitably on the swamp lands. The trees bore regular and heavy crops of fruit of an excellent quality, and many blockers were making a success of vegetable culture. As population increased the swamp lands could be made to support a large number of people, and produce much more revenue than would be the case if the swamps were restricted to dairying and lucerne growing.

PARILLA (Average annual rainfall, 16in. to 17in.).

April 24th.—Present: eight members.

COMBINED DRILL AND CULTIVATOR V. SEPARATE IMPLEMENTS.—In the course of a short paper dealing with this subject, Mr. J. A. Mann said many advantages could be claimed by the combine over the separate implements. In the first place there was that of cost. A 25-hoe drill cost £90, and a 12ft. cut cultivator £65, or £155 for the two implements. A combine could be purchased for £120, which meant a saving of £35. One man was able to operate the combine, and 25 acres of land could be covered each day without any difficulty. The speaker contended that with the combine, the seed and fertilizer were placed on a better seed bed than was the case with the separate implements. Again, with the combine, the fallow could be worked back without the assistance of any other implement, and as a weed killer, he knew of no better machine, provided the land was cleared of roots and bushes. Mr. Mann stated that in the Wimmera districts of Victoria, the combine was a most popular implement and many of the farmers in that district used the machine to do their summer fallowing. The paper provoked a good discussion and opinion was fairly evenly divided for and against the combine.

THE BRIDLE V. THE SPRING DRAUGHT PLOUGH.—Mr. A. W. Welden, who read a short paper dealing with this subject, expressed the opinion that the spring draught was very superior to the bridle draught on ploughs. In the first place the spring draught gave a greater land clearance, which permitted stumps and bushes to pass through the plough unhindered. The springs also relieved the jarring on the shoulders of the horses, and the plough bodies would jump without

causing the chains to tighten. The spring plough would also work land which a bridle plough would not cultivate. The wear and tear on the springs and other fittings would in all probability be more expensive than the wear and tear on bridles, but if the farmer wanted to root the stumps out of the land, the spring draught implement would do the job just as well as the bridle draught plough. An interesting discussion followed in which the majority of members favored the spring draught plough.

PARILLA (Average annual rainfall, 16in. to 17in.).

June 22nd.—Present: eight members and two visitors.

FALLOWING.—The following paper was contributed by the Hon. Secretary (Mr. C. S. Foale):—"The practice of fallowing is becoming more and more generally adopted, because it is now more fully recognised that a crop grown on fallow yields heavier returns than one grown on grass or stubble land. To grow heavy crops, it is necessary to build up the soil; this we do, not only by the application of fertilisers, but also by fallowing. During the fallow period, the land apparently lies dormant, but it is really working under the influence of the sun and atmosphere to store up plant foods, and it is also storing moisture for the subsequent crop. This storing of moisture is probably the most important action of fallow, for without moisture the plant foods, natural or artificial, cannot be made available to the crop. Fallowing, therefore, is a form of water conservation—as well as a soil improver—by which the rainfall of two years is made available to one crop. The chief points to be considered in relation to fallowing are how and when it should be done. The first of these points may be passed over briefly as the general rule is to use a share plough where the land is clean, or a disc where there is rubbish or bushes. The depth of ploughing comes under this heading, and may raise a debatable point, because some farmers favor deep ploughing, others shallow. The chief consideration is that the soil be completely and evenly cut and turned right over, thus burying the grass and weeds which will then soon become decomposed. An average depth of from 2½in. to 3in. is quite sufficient. In this country it is rather dangerous to go much deeper, because too much clay is brought to the surface. The better practice, if deep ploughing is desired, is to increase the depth slightly each time of ploughing, but it has yet to be proved whether deep ploughing is an advantage in our district. When to fallow is a very important point, and one on which there is some difference of opinion, but it is now becoming the recognised thing to fallow as early as possible after seeding. When this is done weeds are ploughed under before they have obtained a firm root-hold in the soil and before they have used up the plant food required for the next crop. June fallowing is preferable if at all possible, but anything later than August is, as a rule, of very little use. Summer fallowing is fast coming into vogue, and in districts where it has been practised for some years past, such as the western districts of Victoria, and in our own district to a limited extent, it has been proved that summer fallow yields a heavier crop than even early winter fallow. February and March are the periods during which summer fallowing is done. The land, although dry, ploughs up well when good sharp shares are used. Land that has been out for a year ploughs more readily than stubble land. Of course the job is a dusty one, but it is worth that disadvantage, and is also worth the further disadvantage of wearing out a few sets of shares. Immediately seeding is over the summer fallow should be harrowed. This will give a fine level surface, and clods that may have been turned up can easily be broken, because they are damp. The cultivator should now be brought into work which will destroy all weeds that germinated whilst seeding was in progress. Fallowing is the surest and most up-to-date method of preparing to grow a good crop, and it is to be hoped that farmers will fully recognise this fact, so that in the not far distant future, all the wheat crops of the State will be grown on well worked fallow, thus greatly increasing the present low average yield. We will be forced to increase the average yield to make wheat-growing pay, for the high price for wheat of the past few years will not, on present indications, be maintained in the future."

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PARILLA WELL (Average annual rainfall, 16in. to 17in.).

June 25th.—Present: 14 members and three visitors.

QUESTION BOX.—Mr. Slater asked the members if they thought it advisable to feed off a forward wheat crop. Members thought it might be an advantage on new land, but with the present methods of fallow and seeding after rain with a variety of wheat to suit the time of sowing that would not be necessary, nor would it be advisable. Mr. Mitchell asked, "Is it advisable, when fallowing, to plough sand hills deep or shallow?" Mr. J. W. Johnston replied that sand hills should be ploughed as shallow as possible. In answer to the question, "Would it pay to have an expert in our district to class small flocks of sheep, and advise on the class of rams to use?" by Mr. J. E. Johnston, the members thought that more should be done by farmers to improve their flocks by culling and getting sheep more of one class. It would then probably pay to procure an expert.

PATA.

June 27th.—Present: nine members.

CORRECT TIME FOR SEEDING ON THE MCKRAY LANDS.—The Hon. Secretary (Mr. L. R. Best) contributed a paper on this subject. He thought it was generally agreed in that district that early sowing was the best. Good crops had been secured from seed sown as late as August, but as a general rule that practice would be disastrous. The average yield for the county of Alfred during the last seven years was a little under 9bush. per acre, and that period included two exceptionally good years. He thought the average crop could and should be raised to 15bush. per acre. He knew of scrub country in the lower north which was inferior to the quality of soil in that district, but from which a yield of over 17bush. per acre was obtained. Twelve years ago the average yield was 9bush. per acre, and that increase had been brought about through more efficient methods of cultivation. The present practice was to sow only fallowed land to wheat, and sow a portion of the stubble to oats, from which the hay was cut. He thought the time was not far distant when wheat would be sown on nothing but fallow, and what little stubble there was would be sown to oats. It was a well-known fact that there were only, at the most, three weeks of ideal seeding weather which followed immediately after the first seasonable rains, and he contended that by taking full advantage of the good seeding weather, it would be possible to increase the yield by from 4bush. to 6bush. per acre. During the past two seasons he had observed very closely the results of sowing on his own farm, and found that wheat cropped within three weeks of the first rain averaged as follows:—1921-22, 14½bush. per acre; the average for the farm was only 8½bush. During 1922-23 the wheat sown at the same period after a good rain late in April averaged 15bush., whereas the average for the whole of the crop was only 10bush. per acre, thus proving, in his case, that late, or early dry sowing was a mistake. Fairly satisfactory, and in some cases very good results, had been obtained from wheat sown before rains, but he believed that much better results would be obtained by delaying sowing until the ground was moist enough to ensure a good and immediate germination. In preparing stubble land for seeding, he would burn off the stubble as soon as possible, cultivate it with a rigid tyne cultivator, pick off all the loose stumps, and then harrow down to ensure all weed seeds being buried so that the rubbish would not germinate after a fall of rain. He would then pickle the seed wheat. If bluestone were used, that could be done at any time previous to sowing. He had pickled seed wheat when carting it into the barn at harvest time, and had received excellent results from that practice. Many persons made the mistake of building a chaff-shed too small for requirements. He thought it should hold at least 8 tons of chaff, and the farmer should never have to stop seeding operations to cut chaff. The drill, cultivator, and all the plant required for seeding should be overhauled, and all worn parts should be replaced, so that there would be no delay in that respect when the rain came. For seeding purposes he thought the best implement was the spring-tyne cultivator, because that implement made a splendid seedbed and was a good weed killer. With good clean fallow, and stubble that had been well worked after harvest, the cultivator would kill all the weeds that germinated, and it would then only be necessary to use a light drill-harrow after

the drill. He thought that if a farmer had a 10ft. spring-tyne cultivator and a 20-disc drill with harrows attached, and 14 horses, he would have no trouble in cropping 450 acres in three weeks, and he felt confident if that method were carried out there would be a welcome increase in the yields. During the discussion which followed, Mr. Petch stated that he thought the farms were too large in that district. If the area of each holding were restricted to 800 or 900 acres, the methods of cultivation would improve greatly. At the present time on the large farms the farmers, in a number of cases, had only half, and sometimes less, of their land cleared, and cropped up to 800 or 900 acres each year with 12 or 14 horses. He was sure that if the same plant was used to crop half the area, more wheat would be grown. Messrs. Mutter, May, F. Heitmann, and Priest also discussed the paper.

YOUNGHOUSEBAND.

June 28th.—Present: 10 members.

POULTRY AS A SIDE LINE.—Mr. W. H. Bates, who read a paper dealing with this subject, said, whilst poultry-keeping was a very interesting and profitable side line on the farm, it was too often neglected on the average holding. The work connected with the fowls was by no means strenuous, and the gathering of the eggs and the setting of the hens could be performed by the women folk. Two of the main factors that had to be taken into consideration if a person wished to make a success with the poultry, were the judicious selection of a breed and careful management of the birds. The writer was of the opinion that there were only two breeds that were worthy of consideration, and they were the White Leghorns and Black Orpingtons. The chief points in the management of the flock were cleanliness, feeding, hatching, patience, and enthusiasm. Cleanliness.—Unless that important point was strictly adhered to the farmer would be courting disaster, because disease and vermin would very soon cause a great loss amongst the birds, and especially amongst chickens. All sheds and houses used by the birds should be well ventilated, but not draughty. Straw roofs were cooler than any other form of roof, especially in districts that had very hot summer weather. Feeding.—Fowls should be fed at regular hours, twice each day, in the morning and the evening, with headings, screenings, and other grain. The diet should be occasionally varied by giving the birds a warm mash of bran and pollard mixed with green feed. In cold weather such a diet was conducive to egg production. If rabbits could be obtained on the farm, they could be boiled and the meat fed to the fowls. The water should always be kept in the shade, the troughs kept clean, and an occasional dose of Epsom salts

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added to the water, would help to keep the fowls in a healthy condition. He was of the opinion that hatching chickens in the natural way was the better method for the average farmer. Before setting the hen, care should be exercised in selecting the eggs. Misshapen, double-yolked, and thin-shelled eggs were useless. The hen should also be examined for tick and lice, because if she harbored such insects they would prove fatal to the chickens. If the hen had scaly leg that disease would also be passed on to the young birds. Hatching should be done during the months of August and September, so that the birds would have finished moulting before the commencement of the cold weather, and would be laying when eggs were at a high price. The most prevalent diseases affecting fowls were roup, diarrhoea, and dysentery, and the speaker strongly advised the destruction of any birds ailing with such complaints. Scaly leg could be cured by an application of kerosene and lard. Lice and tick were very difficult to eradicate, but a continual spraying of the perches and houses with hot soap suds and kerosene would, in the majority of cases, get rid of the pests. All roosters should be separated from the laying hens. Mr. Bates thought that on the average farm a flock of from 200 to 300 birds could be kept without very much bother, and these, if managed carefully, should return the farmer a profit of 10s. per head each year. An interesting discussion followed, in which Messrs. J. and H. Gowling, G. Mann, and H. Brinkley took part.

COOMANDOOK, June 20th.—An interesting discussion took place on the most suitable type of combined drill and cultivator to use in mallee areas. Mr. Trostrail read an article dealing with the valuable work of seed selection that had been performed by the late Mr. W. Farrar.

SOUTH AND HILLS DISTRICT.

BLACKHEATH.

June 29th.—Present: nine members and three visitors.

CATTLE ON THE FARM.—Mr. B. S. Talbot, in a paper dealing with this subject, said the cow was one of the most useful and necessary domestic animals, supplying the household as it did with milk, cream, and cheese. On the majority of holdings devoted to agriculture the farmers did not bind themselves to any particular breed, but there was no doubt that it would be more profitable for the farmer to see that the two or three cows that he kept were good ones and not mongrels, as were so often seen on farms at the present time. Good feed was a necessity if the cow was to give maximum returns. Green feed played an important part in milk production, but as that was not obtainable on most farms, good chaff, with liberal additions of bran or crushed oats, made an excellent substitute. Calves should be dropped in April or May, because there was an excellent market for butter during those months. He considered it a mistake to milk the cow right up to the time of calving. She should be allowed a spell of about three months in order to give her a chance to build up her constitution. The milking Shorthorn was a favored breed with farmers, because animals of that breed were of a quiet disposition, good milkers, and easy to keep, and when they had finished work at the bucket, they could be fattened and sold to the butcher at a good figure. The cows should be brought in quietly from the grazing paddocks, not chased about and excited with dogs, as was too often the case.

CYGNET RIVER.

July 9th.

HAY AND CHAFF.—In a paper under this heading, Mr. H. Cook said in the growing of crops for hay one had to take into consideration the varieties of wheat or oats which were favored by working horses or animals being fattened for market. Clean land and clean seed were two most essential points in growing successful hay crops, and the quantities of seed and manure to be sown to the acre also required careful thought. Land on which it was intended to grow the hay crop should be fallowed and well cultivated, and advantage taken of the

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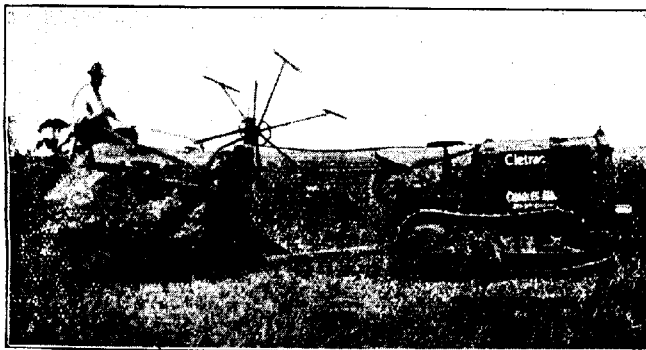
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first rains for that purpose. For that district, he did not advocate deep ploughing, except on the rich river flats, where there was no danger of bringing the clay subsoil to the surface. Mr. Cook favored a mixture of Calcutta Cape oats and Le Huguenot wheat, sown in the proportion of two of oats to one of wheat. Algerian oats were also a good crop for hay, but should be allowed to become thoroughly ripe before being cut, otherwise the hay would be bitter. Calcutta oats could be cut in the green stage. Le Huguenot was a solid strawed wheat with a tall growth. Combination as a heavy weighing wheat was unsurpassed, but it could not be recommended for feeding in sheaves to horses. There were a number of coarse wheats which produced good hay for feeding purposes, and of that class he considered Florence the best, although somewhat light when put on the weighbridge. In cutting the crop, great care should be exercised to see that the binder was tying a firm and good sized sheaf. Calcutta oats could be stooked immediately after the binder, as also could all kinds of wheat if cut at the right stage, but Algerian oats made a better product if allowed to lie in the fields for a day before being placed into stooks. Carting should be commenced at the earliest possible opportunity, and the hay stored in a shed. Where no shed was available the stack should be built as high as possible on a sloping piece of land. The stack could be made mouse proof by making a gutter 1 ft. deep and from 4 in. to 6 in. wide right around the stack. Galvanized iron should then be placed in the gutter, which could be filled in with cement. To make a good sample of chaff, the hay should be moistened with a spray pump before being put through the cutter. Attention should also be paid to the knives to see that they were properly set and sharpened. The chaff was best stored loosely in a mouse-proof shed, bin, or shed. The following estimate of what it cost to produce one ton of hay with four horses was supplied by the speaker:—Ploughing 12s., harrowing twice 3s., drilling 3s., seed 9s., super 6s., rolling 2s., binding and twine 10s., stooking 2s., carting 5s., cutting into chaff 10s., interest on plant 10s., making a total of £3 12s. for an average crop of one ton to the acre. In referring to the feeding of horses, Mr. Cook said it was a grave mistake to give the horses too much feed at one meal. Little and often was a much better practice. Extracts dealing with the "Destruction of Birds" were read from the *Journal of Agriculture* by Mr. J. J. Osterstock.

GUMERACHA (Average annual rainfall, 33.30in.).

June 25th.—Present: nine members.

CARE OF THE HORSE.—Mr. W. V. Bond contributed a paper on this subject. The stable, he said, should be the best the means would allow. Many men recommended feeding at regular hours, but in that district, when long trips to town had to be made, that could not conveniently be carried out. He would advise carrying a nosebag, and giving the horse a feed whenever a stop was made. He had found that two short feeds with good chaff and oats were much better on a lengthy journey than one long feed. He was of the opinion that food played a more important part than the whip on a long journey. Water should be provided four or more times a day. Horses would tire more quickly for the want of a drink than they would for the want of food, especially during the hot weather. Grooming should be done every morning; all the dry sweat should be cleaned off. Care should also be taken to see that the harness fitted well and did not chafe, or that would soon cause a sore. When a horse became old and spiritless, he thought the best and most humane method of disposing of the animal would be to shoot it. At the present day mechanical ingenuity was making rapid strides in displacing animal labor, but he did not think the day would ever come when the horse could be dispensed with entirely.

MEADOWS (Average annual rainfall, 25.52in.).

June 27th.—Present: 10 members and two visitors.

FARM BOOKKEEPING.—"A correct and comprehensive system of bookkeeping is just as necessary on the farm as it is in an ordinary business house," said Mr. F. Vickery in a paper dealing with the above subject. Farmers frequently had

a good deal of difficulty in compiling their income tax returns. Such trouble was due to a lack of care, or system in keeping a correct record of sales, purchases, etc. The heels of the cheque-book and the bank pass book certainly enabled the farmer to tell what moneys had been paid away and what moneys had been received, but it was difficult to tell where the money came from. He had found the keeping of two accounts, one each for the house and the farm, an excellent system of bookkeeping. The accounts should be kept separate and a note made on the heel of the cheque, showing for whom the cheque was made out and for what purpose the money was paid away. On an up-to-date farm, where revenue was constantly being received, complete accounts should be kept for all expenditure and revenue. To do that successfully it was necessary to have two cash books in addition to the ledger. Failing that, two accounts could be kept in the ledger; petty cash, or cash banked. When cash, cheques, &c., were received, an entry should be made under one of those accounts, and the account written up whenever money was taken to the bank. By such a system the farmer would be able to tell at a glance how much had been paid in, the percentage of income from each line, and the money realised from each undertaking. The petty cash account was more difficult to handle, because no bank official had anything to do with the keeping of the figures. Cash received should be totalled at the end of the month. The same should apply to all moneys paid away. The accounts should be balanced at the end of each month and any deficiency should be paid with a cheque drawn for that purpose, whilst any surplus could be shown as cash banked or cash in hand. If some such record of keeping trace of the expenditure and revenue were adopted, the farmer would save himself endless trouble and inconvenience when the time arrived for him to make up his agricultural returns.

RAPID BAY.

July 7th.—Present: 15 members.

THE USE OF FERTILISERS.—Mr. G. Roper, who contributed a paper dealing with this subject, said the present shortage of labor and the high rates ruling for wages, made it imperative that the farmer should get the best possible returns from his land. Before applying any fertiliser, the farmer should find out which was the best kind of manure to use on his land. In their district which had a heavy rainfall, most of the land was devoid of lime, and was subject to the growth of sorrel. To improve such soil, a dressing of lime was necessary. If it could be procured, he recommended a dressing of bird guano, which, was obtained from the islands on the south coast of the State. On dry lands that had an abundance of lime, he recommended the use

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of superphosphate. Wheat depleted the soil of available nitrates and soluble phosphoric acid, and it had been demonstrated that a 24bush crop removed 16lbs. of phosphoric acid from the soil. If another crop was grown the following year, the phosphoric acid would have to be restored, and to do that it would be necessary to apply 90lbs. of superphosphate to the acre. Land that was continually being cropped required liberal dressing of manure to assure payable returns. He recommended the top dressing of pastures, and from experiments that he had carried out, he had proved that artificial manures could be applied to pastures with profitable results. By the adoption of that practice sour country could be sweetened, poor pastures could be enriched, and the carrying capacity of the land increased. The milk flow of both cows and ewes was increased, which was essential for the dairying and fat lamb industries. The best method of treating rough grass lands was to broadcast the fertiliser, but where the land was suitable the fertilisers could be distributed with the drill.

ASHBOURNE, July 23rd.—Mr. V. H. Payne read a paper "Points for Potato Growers," in the course of which he stressed the necessity for the thorough preparation of the soil, and a personal inspection of the seed to ensure the success of the crop. An interesting discussion followed in which Messrs. C. Pitt, A. South, and H. R. Meyer took part.

BLACKWOOD, July 16th.—Several subjects of local interest, including "The Standard Fruit Case," "The Upper Sturt Water Scheme," and "Balancing Young Fruit Trees," were brought before the meeting and an interesting discussion followed.

IRON BANK, June 20th.—The meeting discussed subjects relating to the horticultural practices in that district. A programme of work for the ensuing six months was prepared, and the officers for the year 1923-24 were elected.

LENSWOOD AND FOREST RANGE, June 25th.—After the election of officers for the ensuing term and the presentation of the annual report by the Hon. Secretary (Mr. H. H. Schultz), Mr. B. J. Lawrence read a paper, "The Standard Fruit Case"; Mr. M. Vickers read a paper dealing with the report of the Blackwood Experimental Orchard; and Mr. H. Schultz contributed a paper dealing with the subject "Pruning."

SHOAL BAY, June 26th.—A member read a paper from the *Journal of Agriculture*, "Combined Drill and Cultivator *versus* Separate Implements," and an interesting discussion followed, in which the majority of members expressed a preference for the separate implements.

SOUTH-EAST DISTRICT.

KYBYBOLITE (Average annual rainfall, 22in.).

June 28th.—Present: 10 members and two visitors.

THE FARM FRUIT GARDEN.—The following paper was contributed by the Hon. Secretary (Mr. S. C. Billinghurst) and read by Mr. A. H. Bradley:—"This is a subject that is well worth the consideration of every landholder, whether large or small, because apart from the usefulness of the garden in supplying the home with fresh fruit, it beautifies the homestead and tends to add value to the property. In many instances, where farmers have no fruit garden, a weekly supply has to be bought from the local fruiterer, whose fruit is oftentimes days old and in some cases weeks, before it finds its way to the consumer. This alone would be the cause of much less fruit being eaten in the home than otherwise would be the case, and I am sure that if a farmer looked after a small garden his time would be well spent and the return profitable, and as well he would gain the gratitude of his wife and family. Select the piece of land on the property for the garden, preferably one with an eastern slope, consisting of soil of a loamy

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22, King William Street, Adelaide.

FRANK BLAMEY, F.F.I.A., Manager.

texture. A sandy loam has its advantages over heavier soils, because fruit trees invariably do much better on sandy soils, and they are also lighter to cultivate. Consideration should also be given to the natural drainage. In preparing the soil for the trees plough the land as deeply as possible and subsoil. Where no subsoiler is available use dynamite, or some other similar explosive. After ploughing, cultivate the block to bring the soil to a fine tilth. Choose a system of planting and stake out the positions for the trees. Knowing where the tree is to be planted is of great importance where a subsoiler has not been used and where it is intended to use explosives. This latter is done by simply driving an ordinary crowbar, 1 in. in diameter, down 3 ft. or 4 ft. into the ground. Remove the bar and insert one or two plugs of explosive attached to a fuse and fire in the ordinary way. This method, I believe gives quite as good results as subsoiling, and is much quicker. When the trees are ready to be planted remove the surface soil, placing it on one side of the hole, and then take out the subsoil, keeping it separate from the soil. It is then a good plan to dig well into the bottom of the hole from 1 lb. to 2 lbs. of super and cover it over so that the roots will not come into contact with the fertiliser. Cut away all broken or bruised roots and use the surface soil, into which has been mixed about 1 lb. of bone dust, to fill up the bottom of the hole, and press the soil tightly around the roots of the tree and fill up the hole with the subsoil. Select the trees in such a manner that a continuous supply of fruit will be obtained throughout the season, at the same time taking into consideration the qualities of the different varieties for jam making, preserving, and drying. Though for the first few years the demand will be greater than the supply, there is bound to be a time when the tables will be reversed, and then only can the full value be obtained with varieties possessing one or more of the above qualities. The garden in the main should consist of apricots, peaches, plums, figs, apples, pears, quinces, oranges, lemons, and vines. There is no question that some varieties of Japanese plums and nectarines are very fine and luscious fruits, and are worthy of a place in small quantities, but neither can be recommended for jam making or preserving. Loquats and cherries are, generally speaking, not worthy of much consideration, because only in selected areas can they be made to bear profitably. There would be little or no need to duplicate varieties of the above-named fruits when planted 20 ft. apart, because approximately 100 trees per acre can be planted on the square system, and approximately 125 trees per acre on the septuple system. Care of the orchard:—Cultivate the soil thoroughly during the year. It will be found to have a marked effect on the trees and fruit if the soil is harrowed or cultivated after rain has fallen during the summer months. Prune the trees, especially in the early years of growth. Should any signs of diseases appear, commercially prepared remedies are obtainable which are easily handled and are not very expensive. Small quantities of manure supplied from time to time will produce more and finer fruit. I would like to make a few remarks on gardens already established on properties. In a great number of cases, trees of poor varieties have been bought from unreliable sources. The trees have no vigour and the fruit is inferior. These should be taken out and replaced by new ones. Again, some trees have passed their stage of profitableness and are very much on the decline. Some of these can be renovated by cutting hard back and made to produce young vigorous wood, and later on fruits, but in the majority of cases it is much better to replace by new trees. If the garden is naturally unsheltered from prevailing winds much benefit will be gained by supplying a breakwind in the form of a row of almonds or pines, both being valuable assets to the property. Finally, if reasonable care is taken of the garden, the time spent will not have been unprofitably used."

MOORAK.

June 21st.

SPRAYING FRUIT TREES.—Mr. H. H. Orchard (Orchard Instructor and Inspector for the South-East) read the following paper:—"Spraying, as a branch of fruit-growing, is, unfortunately, not recognised as it should be. The commercial orchardist knows—or he should know—the important part spraying

AGRICULTURAL PUBLICATIONS.

Following publications have been issued and are available for distribution at prices mentioned:—

"First Aid to the Horse," by F. E. Place, B.V.Sc., M.R.C.V.S., &c.; price, 3s.; posted, 3s. 2d.
 "Fruit Tree and Grape Vine Pruning," by Geo. Quinn; price, 3s. 6d.; posted, 4s. 3d.
 "Poultry Manual," by D. F. Laurie; price, 1s. 3d.; posted, 1s. 5d.
 "Vinegrower's Manual," by A. Sutherland (1892); price, 6d.; posted, 7d.

Journal of the Department of Agriculture, 1s. per annum in advance; 3d. per single copy to residents in South Australia. Other places, 2s. 6d. per annum; single copies, 6d. each.
 Following bulletins and leaflets may be obtained by residents of South Australia by sending a 1½d. stamp for postage of each copy required; other places, 3d. each:—

Communications must be addressed—Editor, "Journal of Agriculture," Victoria Square, Adelaide.

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AGRICULTURAL BUREAU.—Particulars of this Organization, of which every farmer should be a member, can be had on application to the Department.

plays in the ordinary routine of orchard work, but it is the owner of the small 'home' orchard who is so often neglectful. He may not dispose of his fruit as a commercial proposition, merely growing sufficient for home requirements, and for this reason considers spraying is not at all essential. He either deliberately or unconsciously overlooks the position of his neighbor who systematically and regularly sprays; his neglected trees will assuredly act as host plants for diseases, which will spread whenever an opportunity offers. A strange thing, too, but nevertheless a fact, the non-sprayer is the person generally ready to give his fruit away to his friends, thus opening another possible means of spreading diseases through affected fruit or dirty cases. It must not be inferred that spraying alone is sufficient for good results, because pruning also plays an important part. The keen grower, who has perhaps benefited from practical demonstrations in the past and been able to prune his own trees, should follow up the work by spraying, and in this way assist the efforts of the pruner. The fruit tree that gives the best returns is the well-shaped and balanced one which each year develops a certain amount of good, healthy wood and carries a good crop of clean, well-formed fruit, and this ideal can be reasonably expected from the operations of spraying and pruning, assisted by judicious cultivation and manuring. Any one operation alone is not sufficient. Granted, the cost of production will be increased slightly by spraying, and a certain amount of extra labor involved, but this is easily balanced by the increased production, the high percentage of clean fruit, and the general satisfaction to be derived from the apricot free from scab or the apple tree free from codlin. It may be asked why spraying is necessary when years ago it was not practised to the same extent. Against this it must be remembered that cultivated trees are not growing under conditions pertaining to trees growing wild; they are so handled that they generally carry profitable crops every year. This is, to a certain extent, weakening, and makes the tree more liable to be attacked by disease; by spraying, this weakness is somewhat counteracted, for a regular and well-sprayed tree is a healthy tree. The operation is one that must be carried out with regularity, for to spray one year and miss the next is no good. Omitting to spray because the trees were clean the previous year is a poor policy and cannot be too strongly condemned, for a disease may be preventable, and, in any case, it is certainly more economical to endeavor to prevent than attempt to cure. Certainly, diseases may not be prevalent every year, because much depends on weather conditions for their development, and as one cannot always anticipate the weather, it is far better to safeguard the trees by a timely application of spray. Even here, where you probably only grow for home consumption, the same attention is worth while, for if anything is worth growing it is worth growing well. Spraying, like most other things, requires the exercise of a little common sense. For instance, to spray a tree regardless of the main points attaching to the particular disease or pest will probably result only in loss of time and money, and the grower will condemn the spray, whereas in reality he is perhaps to blame himself. To support this, a case that recently came under notice will be of interest. A keen grower was troubled with woolly aphis on his apple trees, and in a praise-worthy attempt to clean the trees used arsenate of lead. This, of course, is a poison, and is quite effective for chewing insects; but on the aphis, which by means of a pointed hollow tube pierces the tissues and sucks the sap, it has little or no effect. First of all, then, discover the cause of the trouble, follow it up by becoming conversant with its mode of life, and then, and not till then, spray at the most effective time with a proved spray, and do the work thoroughly. Success, therefore, merely depends upon discovering the cause of the trouble, applying the proper remedy thoroughly and at the right time. Do not blame the spray if success is not achieved at once; fungoid diseases may take more than one year to get under control, and more than one application of spray; the mixture may have been applied at the wrong time, or was not of sufficient strength, or not a proved remedy, or the weather conditions not suitable. Remember, too, there is no 'cure-all' remedy, even though alleged preparations may be well advertised. It is necessary that both sides of the leaves be covered with spray, because the under side is where many of the pests settle, and should heavy rain fall before the spray has dried it will be necessary to repeat

the operation as soon as possible; a light rain might be an advantage by helping to evenly distribute the spray mixture. If possible operate during dull weather, always avoiding a hot sun. When spraying in the summer time and the trees are in full leaf, a large area has to be covered, and it is therefore advisable to use a finer nozzle than need be used in the winter time when the tree is denuded of foliage and the arms only are treated. When buying spray preparations keep to proved remedies and do not go necessarily for the cheapest article; it does not always prove the most economical in the long run. The commercial orchardist generally prepared his own spray material, but for small growers requiring only limited quantities, it is recommended as more economical to purchase. A spray pump, of course, is necessary, and obtain one of sufficient size to carry out the work well. A large outfit is not desirable, nor is it advisable, where the number of trees is limited. Spray pumps to cope with the requirements of the 'home' garden are on sale by all the well-known firms, and it is well to remember that the one which gives pressure at a minimum of exertion is the best. The cost of an outfit may sometimes be helped by hiring it out at a nominal figure, while its life depends very much on the treatment it receives. Most sprays are corrosive in their action, and for this reason, when spraying is completed, pump and hose and all parts should be thoroughly cleaned and then put away under cover. The tank must be kept full of water when not in use. The troubles of a fruit tree may be divided into two sections—fungi and insects. A fungus is a form of plant life, and as it lives on other plants, it is a parasite. It throws out roots or mycelium, which enter the tissues of the leaves and break down the cells and utilise the sap, finally throwing out spores or seeds by means of which the fungus is spread and carried on, for these spores, under suitable conditions, throw out fresh mycelium, and so carry on the trouble. It is evident, therefore, to cope with a fungoid disease, any treatment to be effective must be applied before entrance is gained into the tissues; the treatment is preventive and not curative. Spraying after the disease shows is no good, because the damage is done then. Usually moisture and heat are required for the development of fungoid diseases, and the moisture they require is usually their undoing, for that moisture at the same time dissolves some of the spray material, and it is in this way that the spores are killed. The objective, then, with fungoid diseases is to well clothe the tree with a spray or fungicide, and the most used fungicides are compounds of copper. Bordeaux and Burgundy are the well-known remedies. The Bordeaux consists of a mixture of bluestone, lime, and water, and it is essential to the success of this spray that good lime be used. The object of the lime is to prevent burning of the foliage by the bluestone, and make it slowly soluble. With the Burgundy mixture soda is used in place of the lime. A fungicide should be applied in the late autumn, when the leaves can be readily brushed off. The wintering or resting spores, which are the reproductive cells of the disease, are then attacked, and for this reason a strong solution should be used. The next spraying should be given when the buds begin to swell, when normal strength material is used. It may also be necessary to spray again when the fruit has formed. All leaves, rubbish, and prunings from around the trees should be burnt. 'Curl leaf' of the peach and nectarine and 'shot-hole' and 'scab' of the apricot are examples of fungoid diseases. Oidium of the vine, or mildew as some call it, and the mildew of the rose are forms of fungoid diseases, only they differ from the other form in that they are external, and appear on the surface of the plant. This form is readily treated by dusting flowers of sulphur over it on a hot day or spraying with Bordeaux or Burgundy when it shows. The second section—insects—are of two kinds—the mandibulates or chewing, and the haustellates or sucking. The first of the two eat the leaves, fruits, and shoots, and to effectively deal with them their food must be coated with a poison. Arsenate of lead is the most efficacious for the purpose, and the powder form in preference to the paste. Codlin moth, curculio beetle, and the cut worm belong to this class. The sucking insect is provided with a proboscis or pointed hollow trunk, with which it pierces the tissue and sucks the sap. Poison for this class is no good; they must be destroyed by a spray, or insecticide, which, coming in contact with the insect, burns its body or else covers its air holes and smothers it. Woolly aphid, peach aphid, scale insects, &c., come under this heading, and the most effective remedies

are kerosene emulsion, red oil emulsion, resin wash, and poison gas, for which latter purpose air-tight compartments are required. In conclusion, a few of the common pests of fruit trees found in this district will be briefly described, together with the treatment recommended. Codlin Moth.—The damage this insect does to apples and pears is well known. It is a chewing insect, and is readily treated by timely applications of arsenate of lead. The first spraying should be done as soon as the petals fall from the flowers, care being taken to see that the calyx end of the forming fruit is well filled with spray. A second application a fortnight later is necessary, followed by a third from three to four weeks later. Further applications may be necessary if further broods hatch out. An important adjunct to the treatment of this pest is having the trees clean; all dead and broken bark should be scraped off and broken ends or cracked limbs removed. No stakes nor rubbish should be left near the tree, and diseased fruit should not be left on the ground when it falls. These points must be followed if the arsenate is to be thoroughly effective. The use of lagging bandages placed around the stem and fastened with a nail will materially help, but they must be examined regularly once a week and all grubs found underneath destroyed. The arsenate of lead in the powder form should be used at the rate of 1½ lbs. to 50 galls. of water. Curculio Beetle.—This insect works only at night time, remaining hidden during the day time. It eats the edges of the leaves, the bark off the young shoots, and particularly that portion just below the bud. The remedy is to spray the tree with arsenate of lead at the rate of 1 lb. to 8 galls. to 10 galls. of water. Strips of sheepskin placed around the stems with the wool outwards will stop their upward progress, but does not exterminate them. Peach Aphis.—Spray when you see them with kerosene emulsion, red oil emulsion, or tobacco wash, and repeat the dose in a few days, and a third a few days later still, for remember it is only those touched by the spray that are killed. Mussel scale is very prevalent in the district on old apple and pear trees. The treatment at this time of the year is to prune the tree, burn the prunings, and then spray the tree thoroughly with red oil emulsion. Woolly Aphis.—Kerosene emulsion or red oil. The spray for this pest must be driven with force right on to the aphid by holding the nozzle close to the affected parts. The spray must go through the woolly covering and on to the aphid to be effective. Where only a few trees have to be treated, the use of pure kerosene dabbed on to the parts with a stiff bristled brush is recommended. Shothole and seal of the apricot is known on local grown fruit, and yet it is very easily treated and kept under. Bordeaux mixture is the remedy, spraying on in the autumn and again when the flower buds are beginning to open. Failing Bordeaux, Burgundy will do. Curf Leaf of Peach and Nectarine.—This belongs to the same class as 'shothole,' and, like it, it is easily kept in check. An application of Bordeaux when the buds are quite dormant, followed by another when color begins to show in the buds in the early spring, will generally free the tree of 'curf leaf.' A good plan is to destroy all dead leaves. There are other diseases, but the above-mentioned are probably the most commonly found in the district, and time prevents a more detailed list. Reference to the subject matter of the paper will help in the treatment of any pests met with and not enumerated."

NARACORTE, June 9th.—The Hon. Secretary (Mr. G. J. Turnbull) read a paper, "Some Economic Factors Relating to the Use of Horses and Tractor on the Farm," that had been contributed by the Government Veterinary Lecturer (Mr. F. E. Place, B.V.Sc., M.R.C.V.S., &c.) and an interesting discussion followed.

